



FRIDAY, JANUARY 18.

## The "Philadelphia" Endless-Bed Double Surfacers.

The accompanying engraving represents an improved endless-bed double surfacer, built by Messrs. Goodell & Waters, of Philadelphia. The machine throughout is very heavy and durable. It is adapted for a fine as well as a heavy class of work. Endless-bed machines were long kept from being manufactured, first by jealousy of the Woodworth combination, then by ignorance and prejudice, but have now acquired a place in the market from which it would be difficult to dislodge them. They were represented by competitors as coarse and bungling, and were supposed to be fit only for the roughest and coarsest work. Consequently they were avoided by a large proportion of the trade, and timber planing was left to the slow process of the Daniels or "dimension" planers.

This machine will plane from  $\frac{3}{8}$  in. to 12 in. thick, 26 or 30 in. wide, as may be ordered. It has the Goodell patent independent pressure rolls—two rolls acting independently, by which boards of unequal thickness may be fed through simultaneously at the same rate of speed. The rolls are made of different diameters, the large part of one being opposite the small part of the other, the largest part of each

in the *Railroad Gazette* of Oct. 21, 1881, on this subject, he says:

"Gentle motions should signify correspondingly gentle movements of trains and engines, and vice versa; and hence the stop signal should, of all others, be the most energetic." \* \* \* "Now a swinging motion of a lantern on the arm across the track is not naturally an energetic motion. The very idea of swinging is that of easy motion to and fro like the pendulum of a clock. \* \* \* But what can be a more violent or energetic motion, or one conveying more inherently the idea of stopping than the motion of the lantern arm or flag straight up and down? The motion is unusual, and the transitions of motion at each end necessarily quick and decisive rather than easy and prolonged, as in the swinging signal."

What is a more natural "go-ahead" signal than the hand or lantern swung over the head? or "back-up" signal than the backward and forward motion across the tracks? The Baltimore & Ohio, the Central Pacific, the Chicago & North-western, the Chicago, St. Paul, Minneapolis & Omaha, the Delaware & Hudson Canal Co., the Delaware, Lackawanna & Western, the Georgia, the Illinois Central, the Lehigh Valley, the New York, Lake Erie & Western, and the New York, Pennsylvania & Ohio use this code, viz:

"Stop": Raise and lower lantern vertically.

"Go ahead": Swing lantern with circular motion over the head.

"Back": Swing lantern across track.

The above-mentioned roads make a pretty respectable list, and it is hardly probable that any of them are included in the 25 roads considered by the committee.

The last mentioned code is almost universally used in New York state, and it is candidly submitted to practical railroad men whether it is not more natural, more simple and

some 5,000 feet, averaging over nine cubic yards of masonry per lineal foot of span.

No one doubts the propriety of the means used in this instance, but it does not follow that the same is the most appropriate in all long-spanned bridges.

In advocating the cantilever principle much has been said about the effects produced by the extremes of temperature. I would like to see the subject thoroughly discussed and to hear from some competent person the effects produced by the most extreme range of temperature on the St. Louis Bridge and the manner of compensating the same, if any, or, what is the amount of thermotic force generated thereby.

JAMES WILLIS,

Jan. 12, 1884.

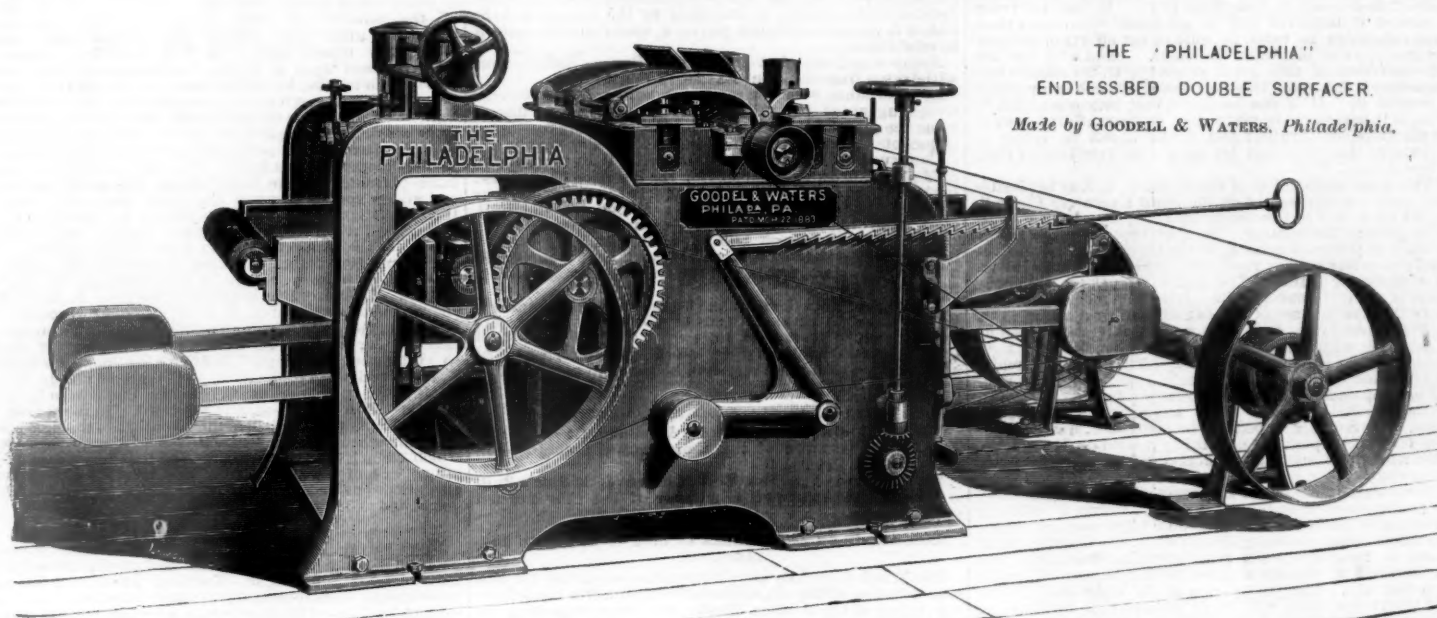
Cornwall, Orange Co., N. Y.

## Quarter Ordinates for Curving Rails.

LEAVENWORTH, Kan., Jan. 6, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

It is a common experience in curving rails, that the curvature comes all in one place, so that the rail instead of being an arc of a circle, is really more like two straight parts joined by a much sharper curve along the middle of the rail. The rail will naturally bend more in the centre by any of the ordinary methods of curving, unless special pains is taken in the process. In all the tables of ordinates for curving rails the centre ordinate alone is given, as if it was only necessary to get the correct distance in the centre to have the rail properly curved. The accompanying table gives the ordinates at the quarters as well as at the centre, and it is believed that if a rail is curved according to the three points given in the table, i. e., the middle ordinate and the



THE "PHILADELPHIA"

ENDLESS-BED DOUBLE SURFACER.

Made by GOODELL &amp; WATERS, Philadelphia.

roll feeding lumber on its side of the machine. The small diameter of the other roll, being raised above the lumber, is not affected by it, and thus the plane is able to feed lumber varying  $\frac{1}{8}$  in. in thickness. The makers claim that it is the only practical device for such work, and as the rolls are solid, without breaks or joints, they are as durable as the ordinary ones.

An important improvement in this machine consists of the yielding sectional pressure bars, or chip breakers, consisting of two independent weighted bars, hinged to the cylinder frame, and swinging in a direct circle with the cylinder, bringing them very close to the knives. The lift of the bars is unlimited, and working in combination with the double rolls, adds greatly to the machine's facilities for doing fine work. The bed is raised and lowered by hand or power, and held upon four large screws, thus having the firmness and durability of a solid bed machine, and securing at once great capacity for changes of thickness without stopping the machine. Further information may be obtained from the makers, Messrs. Goodell & Waters, No. 3,103 Chestnut street, Philadelphia.

## Contributions.

## Uniformity in Signals.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In the report of the Committee on Signals to the General Time Convention (pages 717 and 803, *Railroad Gazette*, 1883) the 25 roads selected to ascertain the practice in signaling are not specified, but the recommendations made appear to favor the practice of the roads with which the gentlemen of the committee are officially connected, which is, perhaps, not strange, as they naturally would prefer a system to which they are accustomed to one unfamiliar. They report that lamp signals be recommended as follows: "Go Ahead," an up and down motion; "Stop," a motion crosswise with the track; "Back Up," a motion in a circle. And also say: "The motions made to convey these ideas should be as near like those made by an untrained person to produce the same movement as possible."

In the able and entertaining paper by Mr. Edwin A. Hill

more easily remembered than the one recommended by the Committee.

The articles by Mr. Hill in the *Railroad Gazette* of 1881 are exhaustive on this subject and worthy of attention, being fully illustrated and ably written. The question of uniformity in signals is very interesting. If like the Standard Time it could be brought about by adopting entirely new standards for all parties, all jealousies and partialities could be avoided, but while uniformity is very desirable it will never prove an easy and perhaps never a safe matter for thousands of employees to unlearn one system, and adopt another, the reverse of one which has become second nature to them through constant use for years; and loss of valuable lives and property might result from such changes.

## Designs for Long Span Bridges.

TO THE EDITOR OF THE RAILROAD GAZETTE:

There has been of late considerable talk about the most appropriate designs for long spanned railroad bridges, all of which are interesting and instructive, the latest being that of the cantilever, and its erection over the Niagara, of which you give a favorable mention in your first issue of the present year. The selected position of this bridge is very favorable to the cantilever principle; notwithstanding, I think another design would be equally suitable, both in regard to strength and economy for the same position.

Reference having been made to the Forth Bridge on the North British Railway, with its enormous spans of 1,700 ft., designed by Messrs. Fowler & Baker, I have read the article and examined the illustrations copied from *Engineering* in your issue of Jan. 6, 1882, and must say that some points strike me very forcibly that the cantilever is not always the most consistent in long spanned bridges. In the case of the Forth Bridge there are four large pieces of masonry on which the three cantilevers are erected, the centre standing on two piers united, built apparently on a shoal, together with the ends, or abutments, making a total of six piers. The four on which the cantilevers stand must contain, as per illustration, not less than 180,000 cubic yards of masonry in addition to the abutments, the whole covering a span of

two quarter ordinates, there will be no trouble in making the rails line properly. The ordinates are given to the nearest sixteenth of an inch, and can be measured on an ordinary foot rule. Many of the tables give ordinates in

## ORDINATES FOR CURVING RAILS, IN INCHES.

Degree.	Radius.	LENGTH OF RAIL.					
		20 ft.		24 ft.		30 ft.	
		Mid-dle.	Quar-ter.	Mid-dle.	Quar-ter.	Mid-dle.	Quar-ter.
1°	5,730	1-8	1-16	1-8	1-16	1-4	3-16
1° 30'	3,820	1-8	1-16	1-4	3-16	5-16	1-4
2°	2,865	1-4	1-8	5-16	1-4	7-16	5-16
2° 30'	2,292	1-4	3-16	3-8	1-4	9-16	7-16
3°	1,910	5-16	1-4	7-16	3-8	11-16	1-2
3° 30'	1,637	3-8	1-4	1-2	3-8	7-8	5-8
4°	1,433	7-16	5-16	5-8	7-16	15-16	3-4
4° 30'	1,274	7-16	3-8	11-16	1-2	1-16	3-4
5°	1,146	1-2	3-8	3-4	9-16	1-16	7-8
5° 30'	1,042	9-16	7-16	7-8	5-8	1-4	15-16
6°	955	5-8	7-16	15-16	5-8	7-16	1-16
6° 30'	882	11-16	1-2	1	3-4	1-2	1-8
7°	819	3-4	1-2	1-16	3-4	5-8	1-4
7° 30'	764	3-4	9-16	1-8	7-8	1-4	5-16
8°	717	7-8	5-8	1-3-16	15-16	1-8	7-16
8° 30'	675	7-8	3-8	1-4	15-16	1-8	7-16
9°	637	15-16	3-4	1-5-16	2	1-8	9-16
9° 30'	604	1	3-4	1-7-16	1-16	2	1-11-16
10°	574	1-1-16	3-4	1-1-16	1-8	2	3-8
10° 30'	546	1-8	7-8	1-5-16	1-4	2	3-8
11°	522	1-8	7-8	1-5-16	1-4	2	9-16
11° 30'	499	1-4	15-16	1-3-16	3-8	2	5-8
12°	478	1-4	15-16	1-13-16	3-8	2	23-32
12° 30'	459	1-5-16	1-8	1-7-16	2	7-8	3-16
13°	442	1-3-16	1-16	1-15-16	7-16	3	1-16
14°	410	1-7-16	1-8	2	1-8	3	5-16
15°	383	1-9-16	3-16	2	1-11-16	3	9-16
16°	359	1-11-16	1-4	2	1-13-16	3	3-4
17°	338	1-3-16	5-16	2	9-16	1	7-8
18°	321	1-7-16	3-8	2	11-16	2	4
19°	303	1	1-2	2	7-8	2	4
20°	288	1-16	9-16	3	1-2	1-4	4
21°	274	2	3-16	1-5-8	1-8	2	4
22°	262	3	5-16	1-11-16	3	1-2	5
23°	251	3	3-8	1-13-16	3	1-2	5
24°	240	2	1-2	7-8	3	5-8	1-4

decimals of a foot or decimals of an inch, both of which are sealed books to the ordinary section foreman. In "Shunk's Field Engineer" is a very good table of ordinates, but it



gives only middle ordinates. The accompanying table includes about all the curves commonly used on railroads up to 240 ft. radius, which is as sharp a curve as a common locomotive should be run upon, although they sometimes do travel sharper ones. If the table were printed on a card, say about the size of a postal card, every roadmaster and section foreman would want one, as well as all engineers who had anything to do with tracklaying.

T. A.

[It will be observed that all the quarter-ordinates in the above table are almost exactly three-quarters of the middle-ordinate, a simple rule which, if borne in mind, largely obviates the necessity of a separate column for quarter-ordinates. Theoretically the ordinate is not precisely one-quarter, but on flat arcs the error is an exceedingly minute fraction. A rail-bending apparatus illustrated in the *Railroad Gazette* of Aug. 18, 1882, bends the rail naturally into almost precisely the arc of a circle.—EDITOR RAILROAD GAZETTE.]

#### Joint Executive Committee Meeting.

At the meeting of this Committee Jan. 10 the Chairman, Mr. Albert Fink, said:

"This meeting was called for the purpose of investigating the causes which made it necessary to reduce the rates on grain and provisions under the rules adopted as per Circular No. 561.

"The correspondence on the subject reveals the strange fact that all the roads represented on the Joint Executive Committee declared that they were maintaining the established tariff rates, and yet there is no doubt, as you all well know, that tariffs were not maintained.

"It could not be supposed that these assurances, given by the managers of the roads, were not sincere, and the only inference to be drawn is, that it is impossible for the managers of these roads to control the rates. If this inference is correct it behooves you to ascertain who causes these great reductions in rates, in spite of the efforts of the general managers to maintain the same. And who are the real controllers of this great property, if the officers into whose hands this great trust is reposed are not in a position to control it. If it can be shown that they are unable to do so, it is necessary to make any further efforts toward the maintenance of rates? and would it not be better to discontinue this office, and let each road take care of itself as best it can? \*

"This is the main object of this meeting. It may be possible that roads not represented on the Joint Executive Committee, which do not feel bound by its rules, may be the cause of the present disturbance. In that case measures should be taken to protect the roads on the Committee against the influences which outside roads can exercise to prevent the maintenance of tariffs. The above remarks particularly relate to the east-bound traffic. It is much more difficult to secure the maintenance of east-bound than west bound rates.

"West-bound rates have been more evenly maintained up to this time, with the exceptions of the difficulties that have arisen from the position of the Lackawanna Railroad, which road does not feel bound to maintain rates, and has for the last year made large reductions from the tariff.

"There have also been many irregularities at Boston. These, however, it is hoped can be controlled, and negotiations for that purpose are now being carried on."

Mr. Fink here recited the action taken to restrain the Lackawanna.

"I will mention as one of the causes which have prevented the maintenance of eastbound rates, the failure to establish a division of traffic from Peoria and other western points. One of the roads working from Peoria (the Chicago, Rock Island & Pacific) is not a member of this Committee, and has declined to become a party to the division of traffic from that city. The joint agents at St. Louis and Cincinnati report that there will be no difficulty in maintaining rates at those points if they are maintained from other cities.

"This meeting is now ready to go to work and see what can be done to stop the irregularities and difficulties that I have mentioned here.

"The first object is to ascertain why the rates have not been maintained; see whether you can find the causes for the disturbance, and then take action to prevent them in future.

"I have here the correspondence that has taken place since the 20th of December up to this time. If you desire to have it read it will give you a view of the whole situation and the efforts made to maintain rates; also the answers received from all the roads saying they will maintain rates, and the reports received showing that rates were not being maintained."

#### RESTORATION OF EAST-BOUND TARIFF OF NOV. 26, 1883.

The Chairman said the first question was whether the present 20 cent tariff was satisfactory to all parties, or whether it was the opinion of the Committee that the rates should be restored to the tariff of Nov. 26, 1883, and called for an expression of the views of the Committee.

Mr. Stewart (Pennsylvania Co.) said that the present tariff was not satisfactory to his company; that he did not believe the reduction to a 20 cent basis had stimulated the movement of traffic at all, but that he had advised that contracts had been made for large lots of grain at the reduced rates.

Mr. Seargeant (Grand Trunk) said that so far as the Chicago & Grand Trunk was concerned, that company had no contracts and its traffic had been constantly decreasing in consequence of not meeting the rates made by other roads. He was quite certain that the Committee had power enough to stop the irregularities in rates, if it was desired to terminate them. If contracts had been made, as alleged, he thought the Committee had a right to know by whom and with whom they were made, and whether it was not practicable to terminate them. That it was a very serious allegation, and should be met. In his opinion the Committee had arrived at a very lamentable conclusion if it separated to-day without taking some action in a conservative direction, and he would, therefore, move that rates be restored to the 30 cent basis.

The Chairman called upon the representatives of the various Chicago roads to state whether any contracts existed over those roads that would prevent a restoration of rates. The representatives of each Chicago road stated that they had no such contracts.

Mr. Blanchard (Erie) said he would like to see rates restored. As far as the Erie road was concerned there was nothing to prevent its being done.

Mr. Thomson (Pennsylvania) said that the Pennsylvania lines had lost traffic by the strict maintenance of rates. He thought it would be disgraceful to pass resolutions at this meeting unless they were going to be strictly observed. While he favored the restoration of rates he would not vote

for Mr. Seargeant's resolution until satisfied that it would be carried out.

Mr. Hayden (New York Central) said he thought the 30 cent basis could be maintained fully as well as the lower rate. As far as the New York Central was concerned it was willing to maintain rates on that basis, but was not willing to be placed in the position of being in the market at higher rates than other lines.

Mr. Newell (Lake Shore) said he had voted for the advance to the 30 cent basis of Nov. 26, 1883, and thought that that basis would be the proper one for present tariff.

Mr. Harriott (Baltimore & Ohio) said he would vote for the restoration of rates, providing that all open questions in the Chicago and Cincinnati divisions were immediately adjusted, the balances promptly settled and transfers of tonnage made at those points, and the contracts fully carried out.

The Commissioner explained that the difficulties in the way of settlement of Chicago and Cincinnati accounts had been removed, and these contracts could now be carried out. A vote being then taken upon Mr. Seargeant's resolution, it was unanimously adopted, and is as follows:

*Resolved*, That taking effect Monday, Jan. 14, 1884, eastbound rates will be restored to the tariff of Nov. 26, 1883; i. e., on the following basis:

Chicago to New York.	Per 100 lbs
Seventh class	35 cts.
Eighth " "	30 " "
Ninth " "	40 " "
Live hogs (to New York and Boston)	35 " "

It was fully understood that if the foregoing rates were not absolutely maintained by all lines, the Commissioner would take prompt action under the resolution adopted Dec. 19, 1883, as per Circular No. 561.

At the meeting Jan. 11, Assistant Commissioner Guilford presiding, an application of the Pittsburgh merchants to reduce rates from the West to Pittsburgh was considered, and it was voted that the present rates are equitable and in proper relation to the rates to other points.

An application to reduce the rates on high wines did not meet acceptance.

Concerning a proposition to establish a uniform price for ice put into refrigerator cars at intermediate stations, it was decided that as the ice is furnished by the shipper and the cost of it varies at different places, a uniform price cannot be established.

Notice was given that the Troy & Boston Railroad had withdrawn from the Joint Executive Committee.

In accordance with the recommendations of the foreign freight agents of the railroads it was resolved to discontinue the practice of inserting in bills of lading for export shipments the words, "insured in consignee's open policy."

Communications were read from Mr. J. T. Furber, Boston & Maine Railroad, recommending the insertion of a clause, in through bills of lading, regarding charge for demurrage on cars; and from Mr. C. J. Waller, Mobile & Ohio Railroad, regarding action taken by insurance companies in reference to clauses on bills of lading limiting carrier's liability, and providing that carrier shall have the benefit of insurance on shipments, and the following resolution was then adopted:

*Resolved*, That the permanent Classification Committee be instructed to prepare forms of bills-of-lading, guarantees, indemnity bonds and releases, for all through east-bound business (including live stock), which forms, upon adoption by this Committee, shall be put into use by all the roads members thereof."

#### CHANGES IN CLASSIFICATION COMMITTEE.

Mr. C. E. Gill, Grand Rapids & Indiana Railroad, was appointed a member of the Classification Committee in place of A. B. Leet.

Mr. G. B. Spriggs, New York, Chicago & St. Louis Railway, was also appointed a member of the Classification Committee.

#### ALLOWANCE OF ARBITRARIES IN LIEU OF PERCENTAGE DIVISIONS.

The Trunk-Line Executive Committee submitted for the consideration of the Joint Executive Committee the following report of the Western Roads Committee, regarding the allowance of arbitraries in lieu of percentage divisions of the through rates on eastbound traffic:

"NEW YORK, Nov. 16, 1883.

"The Committee appointed to consider the question of the basis for the division of through eastbound rates with Western roads which are common connections of two or more trunk lines, unanimously recommend that for the purpose of securing uniformity in such divisions, not more than the following minimum rates be allowed, by all lines, to the connecting road on which traffic originates:

3/4 cents, minimum, for 25 miles and under.
3 " " " 26 to 50 miles, inclusive.
3 1/2 " " " 51 to 75 " "
4 " " " 76 miles and over.

until a pro-rate upon actual mileage (allowing a minimum of 50 miles to the originating road, and short-line mileage from the junction points to Eastern destination, deducting the usual terminals, etc., before pro-rating), will allow said originating road more than the minimums above stated.

"On traffic originating at competing points these minimums to be deducted from the established through rates, on Chicago basis, from such originating points.

"On traffic from local points the minimums to be deducted from the established through rates from such local points, which shall not be less than the rates from adjacent common points.

"The undersigned believe that in applying a uniform rule for division of rates to the traffic of different roads in different sections of the country some inequalities will naturally arise in its operation; but they are unanimously of the opinion that the adoption of some fixed rule for the basis of division of rates is absolutely necessary as a measure to secure the maintenance of rates and avoid ruinous competition.

"The undersigned agree that the allowance of fixed minimums, scaled according to distance, is preferable to the plan of allowing arbitrary percentages of through rates, and they believe that the minimum allowances named herein are, in view of all the circumstances, equitable and fair to the Western roads originating the traffic, as well as to their Eastern connections." (Signed by F. H. Kingsbury, Chas. L. Cole, J. A. Grier, C. S. Wright, Geo. H. Vaillant, Geo. G. Cochran, Edgar Hill.)

Consideration of the report was postponed until the next meeting.

#### DIVISION OF TRAFFIC AND SETTLEMENT OF BALANCES.

The following resolutions, offered by Mr. Blanchard, were unanimously adopted:

*Resolved*, That the former resolutions providing for divisions of traffic at additional points in the West be reaffirmed, and that the Commissioner be instructed to use all his efforts to perfect divisions of traffic at such points as rapidly as practicable.

*Resolved*, That it is the sense of the Joint Executive Committee that divisions of traffic should be made, not only between the initial lines, but that the divisions should be ex-

tended from point of origin to point of destination, between intermediate as well as terminal roads.

*Resolved*, That to carry these resolutions into the speediest and most practicable effect the Commissioner is authorized and empowered to appoint assistants at such points as he may deem for the best interest of this Committee."

#### PROPOSED INSTITUTION OF CLEARING-HOUSE.

On motion of Mr. Blanchard it was

*Resolved*, That the Commissioner appoint a Committee to consider the advisability of erecting this office into a Clearing House, for clearing all the business that comes under the Joint Executive Committee; such Committee to report to the next meeting of the main Committee for action."

The Commissioner subsequently appointed the following Committee: Messrs. Blanchard, Seargeant, Hayden, Thomson, Spencer, Newell, Ledyard, Skinner, Olds and D. S. Gray.

#### LIBRARY OF F. BROUGHTON.

Mr. Blanchard said that Mr. F. Broughton, late General Manager, Great Western Railway, had for sale a very important and extensive railway library, and as it might be desirable that such a library should be accessible to the members of the committee, he offered the following resolution, which was adopted:

*Resolved*, That the Commissioner, in conjunction with the Standing Committee, be authorized to investigate, and, if it was deemed proper to purchase such a library, negotiate with Mr. Broughton for its purchase."

#### Report of the New York Railroad Commission.

The first annual report of the New York Railroad Commission was submitted to the Legislature Jan. 14, and abstracts and selections from it have been published in the newspapers. Some of its statements are given below:

#### THE WORK OF THE COMMISSION.

The Commissioners quote from the law of 1882 to show the nature of their work, and also say that "every step was in the nature of an experiment necessarily accompanied by a close examination of the extent and limitation of the powers of the Board in the premises."

"Shortly after the Board was called into existence," the report says, "it had a large amount of labor imposed upon it by the Legislature of 1883, which was then in session, by the reference of bills and resolutions, in which the time given for examination and report was limited. Complaints of individuals, associations, towns and cities also came in rapidly, to all of which the Board gave its close attention and rendered its recommendations at the earliest moment practicable. The magnitude of the questions presented to the Board under legislative references and under complaints, and the work necessarily done in their investigation, can only be judged by reference to the reports and recommendations made thereon, which will be found in the Appendix, under appropriate headings. As indicating the nature of these complaints, they may be classified as follows: 1. As to discrimination in rates of freight. 2. As to excessive rates of freight. 3. As to overcharge in passenger rates. 4. As to insufficient accommodations, whether as to station facilities, means of transportation or other matters. 5. As to dangerous crossings. 6. As to obstructing crossings. 7. As to violations of contract. 8. As to violations of law. 9. As to matters purely of administration in railroad management. There were 15 in the first class, 4 in the second, 6 in the third, 6 in the fourth, 11 in the fifth, 3 in the sixth, 2 in the seventh, 3 in the eighth, and 15 in the ninth class. There were others of a special nature, which cannot be classified, and which will be treated hereafter. Seventy-five complaints were preferred, embracing allegations covered by the above classification, all of which demanded and obtained investigation."

#### FREIGHT RATES.

Upon this subject the report says: "No more intricate question is before the public than that of the rates for the transportation of freight. Eminent minds and railroad commissions have concentrated their attention upon the subject for years without reaching a conclusion, either satisfactory to themselves, the public, or the railroads. The question is a broad one, and its discussion involves the consideration of 'combinations' and 'consolidations,' the agreements between the great trunk lines, commonly known as 'pools,' 'differential rates,' and the policy almost universal with the trunk lines of charging upon the luxuries the alleged losses incurred upon transporting the staples of produce, tersely stated as 'all the traffic will bear.' The Board has already, in the course of the consideration of the complaints lodged with it, discussed and stated its views upon some relations of the question to the general subject, and these discriminations will be found in the Appendix. The complaints apparently have less to do with excessive rates of freight than with other alleged abuses. The abuses complained of are unjust discriminations, as manifested against individuals, in the giving of special rates, and against communities located at non-competitive points. However much this practice of unjust discrimination may have been defended by railroad managers in the past, it would appear now that, whether as a matter of law or equity, they have abandoned any claim to a right to discriminate unjustly. When brought face to face with the charge, the defence is rarely the assertion of the right, but rather a denial of discrimination. The principle of 'like rates for like service' seem to be conceded, though not always practiced, either through design or inadvertence. There is a demand for the prohibition of special rates, and upon the other side the manufacturers of the state and the jobbing dealers of the interior declare that, unless they are permitted to receive them they will be driven from the state; each of these classes conceding, however, that all manufacturers and all jobbers shall be treated alike under like circumstances, special rates applying to industries rather than to individuals. The subject is of the utmost importance, and unless well considered is fraught with serious consequences to the people and to the railroads in its settlement. Manufacturers and jobbers outside of New York city make no complaints. It is to be presumed that their rates are satisfactory. To have a lower rate than one's competitor seems to awaken no patriotic sentiment in the favored one for the establishment of equal rates. The agricultural interest is not as well satisfied. Their complaint is usually against low through rates from the West. Railroads insist that the farmers of this state treat Western grain as though it grew in Chicago elevators, and ignore the fact that from the Western farm to the elevator it usually pays more than any farmer in this state does for his transportation to New York city. In the inter-state or through-freight aspect of the question, it may be said that little power, resident within the state, can be exercised in its determination. The aspect of the question is now receiving attention from Congress, the only body that can effectually deal with it, and the agitation for a National Board of Railway Commissioners, which shall exercise a supervision over inter-state commerce and transportation has made such progress that measures looking to its estab-



ishment are now under consideration. In the meantime it may be said that publicity as to the management and administration of railroad affairs, such as is guaranteed by the existence of railroad commissions, is doing more toward the solution of the abstruse problem than any other means which has yet been suggested or adopted. The element of secrecy about rates heretofore has been, and yet is, its most dangerous element. Publicity of rates, as of passenger rates, where practiced, seems to have done good, and to have largely prevented unjust discriminations. If this publicity could be practically accomplished it would undoubtedly be well, even for railroads. Suppose a man in business now gets a rate which is better than his competitors. In a short time the competitor hears of it through a mutual customer. Then the competitor clamors, and is given a lower rate still as a peace offering. Now each oftentimes would be entirely satisfied to pay the first rate, if each knew that it was the best and only rate given."

After referring to the work done in connection with the Senate bill to secure pro rata charges for local freight, the report says: "The Board reserves the broad and general question of freight transportation and rates for further consideration and for a special report, to be submitted as soon as practicable."

#### RAIL AND CANAL COMPETITION.

On this the report says: "Whatever may be said for or against railroads competing with each other, there can be no question but that it is of vital interest to the people of the state to jealously guard our great water-ways. In this connection, the Board is impressed with the necessity of careful watchfulness on the part of the people over the canal interests of the state, so that lines of transportation and boats that navigate the canal are not owned or controlled by any railroad corporation. In the course of the examinations of the Board it has discovered a practice on the part of a few railroads of the state, which, if allowed to become general, threatens to effectually destroy all competition by these water routes. These railroads, anxious to increase their regular business, have adopted a form of contract for yearly shippers, making a large reduction from tariff rates—in the case of one road from 30 to 50 per cent.—on the express condition, as developed by the evidence of the officers of the road, that the shippers would not ship any goods over the canal during the season of canal navigation, under the penalty of being charged by the road the full tariff rates, which were from 30 to 50 per cent. more than the special rate under the contract."

"Every citizen of the state has an undoubted right to the benefits of the canals he is taxed to maintain. Any contract on the part of a railroad which deprives a citizen of the benefits resulting from free competition by the canals of the state is questionable, and is strongly urged to be against a wise public policy."

#### INSPECTION.

The subjects of engineering and inspection the report says, "have been given conscientious attention, and all that the time would allow; but with the multifarious duties imposed on the Board, much remains still to be done. When any serious defect was discovered it was immediately reported to the Board and by it to the railroad, with a recommendation to remedy the same, and a notice that a hearing would be given on the subject if desired. With regard to the matter of inspecting and testing bridges the Board is of the opinion that a uniform system should be adopted. Unless a very much larger force of engineers is put at its disposal than at present, it will be impracticable to make such tests and inspections as would insure perfect safety. It is not proposed, however, to relieve railroads, or lead them to suppose they are relieved of the responsibility now resting upon them, in this respect. It would seem better to hold them to an undivided responsibility, and have the state inspection merely such as to see they had fulfilled their duties. As a general rule, however, railroads adopt means which they believe will insure safety to travelers, but are sometimes slow to adopt those that conduce to comfort, particularly in the matter of ventilation, than which, next to safety, nothing is more important."

#### SAFETY OF LIFE AND PROPERTY.

"The subject of better protection of life and property," the report says, "has engaged much of the attention of the Board. Its short experience has satisfied the Board that an active exercise of supervision on the part of the state in this direction is essential. Unless the state energetically insists upon the adoption by railroads of reasonable and practical safety appliances they will run on in ignorance of anything better than they have, until disasters and damages wake them up, and until sorrow and suffering are planted in homes never to leave them. It is not the heartlessness of managers which leads them to neglect the devising of greater safety so much as the unyielding pressure to make everything pay, under which they labor and struggle to the extent of their capacity. It is here that the state can do good as well to the railroads as to the public. Its method must be to gather and condense correct information, and to compel universal acceptance of such practical measures of safety as can be found in actual successful operation upon one or the other of the railroads in the state, having due regard always for the fact that no universal requirement should be made, which is not reasonably within the ability of all roads." Last September the Board made the following recommendations as to grade crossings: "That so far as practicable safety gates be erected and properly tended by competent men at all grade crossings over highways and streets in cities and villages where a safe view of the track is prevented by curves or obstructions. That at blind or obstructed highway crossings in the country, the railroad either remove the obstruction or station competent flagmen." In October the following recommendations were issued: "That at all grade crossings of steam railroads a signal be erected for both day and night use, and that it be regularly tended by competent men; that stop signs be erected and maintained at such crossings; that all trains on either road be required to come to a full stop before crossing, not more than 500 ft., nor less than 150 ft. from the crossing, and then only to cross on signal, until an approved interlocking system of signals and switches is put in operation by such crossing, by which a train which attempts to wrongfully cross in the face of a block must be switched to a side track; that at all places where street car tracks cross steam tracks, safety gates be erected and properly tended during all hours of street car travel." "The replies to the Board," the report says, "would indicate a general disposition on the part of the railroad companies of the state to comply with the above recommendations. Divesting the question of all considerations of sentiment and humanity, in an endeavor to arrive at an answer to the question as to whether, in the end, it would not pay the companies better to at once protect the public and themselves against such danger, it was found that in the space of five years 183 suits for damages arising from accidents at grade crossings had been brought against the companies of the state, of which 35 had been determined in favor of the defendants. The total expense of defending

and settling such suits, paying damages and costs and making repairs to property was \$94,548.23. It is quite clear that on this basis a satisfactory conclusion could not be reached. Taking the lowest figure of the cost of erecting a gate given, \$100, and the New York Central, which paid damages to the amount of over \$62,000, would be put to an expense of more than that amount, or \$90,000; but the average cost of erecting gates at a single crossing, as reported to the Board, is \$550, which would involve the New York Central in an expenditure of \$500,000. It is obvious that to require the gating of all crossings would be to suddenly impose a greater burden of expense than is reasonable. Probably all that is at present practicable is to ask that dangerous and obstructed crossings be gated or protected by flagmen, as recommended by the Board in its circulars. The Legislature ought to prevent the establishing of any more grade crossings by railroads yet to be built, as a rule, unless in exceptional cases, where too great expense or difficulty in construction shall exist."

"A prolific source of destruction of life and injury to limb in railroad employment," the report says, "is the coupling and uncoupling of freight cars by hand. For the eight months preceding the close of the railroad year, Sept. 30, 1883, it is found that 24 have been killed and 177 injured while performing this duty, or 201 killed or injured. It is believed that the number of accidents from this cause is largely due to the carelessness of the employees themselves. The true and only real remedy lies in an automatic coupler. Hundreds of patents have been issued, and yet railroads are very slow to even practically test them. Automatic coupling, as well as hand coupling to cars without the automatic device, seems to be attainable under various forms patented. A statute which will compel earnest endeavor on the part of railroads to solve this question in the interests of humanity ought to be passed, with such provisions as to the time of its becoming imperative as would protect railroads from being required to adopt impracticable devices to their pecuniary disadvantage and to the detriment of their business. Automatic air brakes have been so generally tested, and their utility for the protection of life has been so often demonstrated, that the Board does not hesitate to recommend a statute compelling their use upon all passenger cars. Their use upon freight cars even is being seriously considered. Legislation, however, tending to their general use upon freight cars would be premature and unjust to railroads. It is recommended that a statute, providing that each passenger train shall have at least one brakeman for every two cars, should be enacted. The accident upon the Long Island Railroad, when the air-brakes gave out, sufficiently suggests the necessity of this legislation. There were not enough brakemen to supply the defect. A train should be suitably equipped with brakemen as well as air-brakes, so that either may be available and yet not entirely relied upon. Again, the preservation of order and the protection of passengers is an adequate object to be gained by such legislation."

#### RECOMMENDATIONS.

The Board also submits to the Legislature a bill designed to secure uniform rules and regulations on all railroads, and gives a table showing that the meanings of signals vary widely on the different roads. A special report on color blindness, by Dr. Edwin Hutchinson, is submitted, but the Board does not at present deem it prudent to attempt more than to "awaken the interest of the railroads and the public on the subject."

The Board discusses the law of master and servant as applied to railroad corporations, and says: "A change in the law would stimulate railroads in this state to provide systematic and well-considered measures for the proper care of the injured man, and to see that after recovery he had such work as he could do. A burden now largely imposed upon and borne by the public would thus be placed where it ought to rest, at least as between the public and the railroads."

The Board proposes several amendments to the railroad laws, one of which is to prohibit "the practice of selling stock 'short' of their corporations" by officers and directors. The Board also favors forbidding the leasing of parallel or competing roads.

#### The Late Strickland Kneass.

Strickland Kneass, prominent as a civil engineer, and many years Principal Assistant Engineer of the Pennsylvania Railroad and for several years Assistant to President Roberts, died yesterday at his residence, 418 South Fifteenth street. For almost a year Mr. Kneass has been suffering from a complication of heart troubles, which recently has produced such general debility that no hopes of his rallying sufficiently to resume business have been entertained.

Mr. Kneass was the son of William Kneass, for many years engraver for the United States Mint, and was born July 29, 1821. He was educated chiefly at the classical academy of the late James P. Espey, and left school to enter the house of T. Albert Haven & Co., where he remained a year, and, as he intended to adopt civil engineering as a profession, was sent into the fields upon the surveys for the Delaware & Schuylkill Canal, of which his eldest brother, Samuel H., was the Chief Engineer. This work was, however, abandoned after \$300,000 had been spent upon it. He then entered a mathematical school, upon leaving which he entered upon the surveys of the Philadelphia & Wilmington Railroad. On the completion of this road he became a student in the Rensselaer Polytechnic Institute, at Troy, N. Y., where he graduated in 1839 as a civil engineer taking the highest honors. Soon after this he was made Assistant Engineer and Topographer on the state surveys between Harrisburg and Pittsburgh, looking forward to the construction of a railway between those two cities, but the times were not propitious to accomplish it. He next became a draftsman in the Naval Bureau of Engineers at Washington, and was afterward employed by the British commission in preparing the maps of the Northeast boundary between the United States and the Provinces. In 1847 he was named by J. Edgar Thomson, Chief Engineer, as one of his assistants in conducting the explorations, etc., which resulted in the building of the Pennsylvania Railroad, where he was engaged not only on the surveys but also in constructing that division of the road from Barr Forge to Tyrone, including river bridges and the Tussy Mountain tunnel. He was promoted to the position of Principal Assistant Engineer, and designed the first shops and engine-house erected by the company at Altoona. It was here that his powers were severely tested, as the construction of the road from Altoona to the summit of the Alleghenies was one of the most difficult engineering feats of the day. In 1853 he resigned to accept the position of Associate Engineer on the North Pennsylvania Railroad, where he remained two years, leaving in 1855 to accept the office to which he had been elected as Chief Engineer and Surveyor of the new consolidated city of Philadelphia.

To that position he was elected three times, each for a term of five years. He here organized the department of surveys, and its development, under his direction, may be regarded as one of the most valuable results attained in the city. Not only has it occupied itself with the necessary survey of building lots, recording them in the Registering Bureau and mapping them in atlases, so that they are

available at all times for reference; but the entire drainage system of the city was provided for in the surveys, which resulted in the construction of the great sewers to carry off the waters of Cobocksink Creek on the northeastern, and of Mill Creek in the western, part of the city; filling up the hollows, and not only in providing a great number of building sites, but improving the salubrity of the atmosphere and the consequent health of the city. Of the various bridges that span the Schuylkill, those at South street and Chestnut street are from his designs. The last-named was the first of its kind built in this country. He was one of the first to encourage the project of city passenger railways, and was the Chief Engineer of many of those companies. He was also the designer of the street rail now principally in use all over the country, though he never applied for a patent. Governor Packer employed him in 1859 to ascertain the probable cost of completing the Sunbury & Erie Railroad.

In 1862, during Lee's invasion he was despatched into the interior, and during his absence made an extended survey of the Susquehanna River from Duncan's Island to Havre de Grace. He also assisted Professor Baché in preparing topographical maps of the surroundings of Philadelphia, with a view to the location of forts, etc. In 1869 he was appointed on the commission to determine the boundary line between Pennsylvania and Delaware, and in 1871 made a survey and report on the possibility of improving Jones' Falls, Baltimore, so as to prevent damage by freshets.

He resigned his position as City Engineer April 12, 1873, to accept the post of Assistant to President Thomson, of the Pennsylvania Railroad, and the Select and Common Councils passed a series of complimentary resolutions, as was also the case with the Board of Surveys, the Park & South Street Bridge Commission, etc. The public journals also attested to the value of his services by numerous appreciatory notices.

Mr. Kneass was a member of the American Philosophical Society; of the Franklin Institute and of the American Society of Civil Engineers. In 1853 he was married to Margaretta Sybella, daughter of Hon. George Bryan, of the Supreme Court of Pennsylvania, who survives him, with five children, two sons and three daughters.—*Philadelphia Press*, Jan. 15.

#### Meeting of Roadmasters of the New York, Pennsylvania & Ohio Railroad.

The questions to be discussed at the recent annual meeting of the Roadmasters of the New York were specified as follows in a list submitted by Mr. Charles Latimer, the Chief Engineer:

1. *Cross Ties.*—Should the heart or sap side of a tie be laid uppermost? What difference in price should be made between second-growth hewn ties and sawed or split ties? What are the best timbers and the best dimensions for cross ties? What is the best plan for putting in joint ties?
2. *Joints.*—What is the best and most economical method of strengthening all joints? Does the angle-splice fulfill the requirements of a first-class joint? How about the wooden washer—which shape nut do you prefer, square or hexagonal? Which do you consider the best rail joint in use?
3. *Split Switches.*—How does the split switch made by Clarke & Jeffery, of Chicago, compare with our own make? Do the split switch rods give satisfaction? Should the spring connecting-rod be used on all split switches?
4. *Rail Frogs.*—Should a plate be used under all kinds of rail frogs? Which is the best and safest frog—the rigid frog, or the present spring frog now made? What improvements have you to suggest on rail frogs?
5. *Switch Stands.*—Should the lever of switch stands at split switches be turned toward or from the frog? Do the forked lamp-holders give satisfaction?
6. *Rail.*—What is the absolute life of steel rail for main track use—present traffic?
7. *Track Bolts.*—Do you consider an oil-cut bolt possesses sufficient superiority over a water-cut bolt dipped in oil to warrant a higher price for the former?
8. *Ballast.*—What have you to say for or against furnace slag as a ballast?
9. *Safety Guards.*—Discuss the question of the best device to use at frogs, to guard against accident to trainmen by getting their feet caught.
10. *Curves.*—Do you consider it necessary to use other means than simple spikes to keep the rails on curves in proper position and gauge? What device would you recommend?
11. *Signs.*—What is the best material from which to make station and road-crossing signs?
12. *Shims.*—What is the most convenient form of material for shims?
13. *Standard of Track.*—In what condition should track be kept to have it safe for a single-track road running from 50 to 60 trains per day at a speed of from 20 to 60 miles per hour?
14. *Force.*—Is it true economy to reduce the track force during the working season to what would then be considered sufficient to keep the track safe for the business done on it?
15. *Use of Brakes at Curves.*—In reducing the speed of trains on curves, should not the brakes be applied on the tangent before reaching the curve instead of at the point of curve, thus allowing the wheels full freedom of motion on the curves? Is there any element of danger in this practice?
16. *Bridges.*—Should new bridges be raised above the existing grade of track to allow for the tendency of raising the track by ballasting? Superintendent of Bridges will please make a report of his last year's work.
17. *Water Supply.*—What improvement would you suggest in the water supply? How should cranes be located? Would reservoirs be preferable to tanks where they can be built near the track and with sufficient head?
18. *Paint.*—Which is the best paint both as to composition and color, to use on iron bridges, buildings and water tanks?
19. *Fence.*—What kind of wire is the most durable and best to prevent injury to stock? Fence Superintendent will please make a report of his last year's work, making such suggestions as he thinks would facilitate and cheapen the work.
20. *New Devices.*—Report on such new devices, hand cars, tools, etc., as have been sent you from time to time for examination and test.
21. *What is the limit of single track road in transportation of freight?*
22. *What is the best plan to relieve the New York, Pennsylvania & Ohio Railroad in order to properly handle the traffic now passing over it?*

#### DISCUSSION.

Mr. Latimer writes us of the discussion as follows:

"The above questions were thoroughly discussed, taking from 9 o'clock a. m. until 10:30 p. m., going through them with a great deal of care."

"In regard to the first question, we came to the conclusion that an angle splice did not fulfill the requirements of a



first-class joint. Many joints were discussed, and we had the pleasure of the presence of Mr. Clark Fisher, C. E., who gave a most admirable history of joints and an argument upon what was necessary for a perfect joint, and he presented a model of his own, which certainly has remarkable merits, and an investigation showed that the old pattern of the Clark Fisher joint had been in use on the road 11 years and was in good order; as a general rule used on Downlows steel, which also was in good order after the use of 11 years. Mr. Fisher claims that his joint is perfect on account of its being a bridge, and certainly the argument is very strong. We are now trying some of them.

"The question of split switches we have had up frequently, and the unanimous opinion is in favor of split switches for all parts of the main track against everything else known to-day.

"The method of planing by Clark & Jeffery, to avoid a sinking of the moving rail, thereby sometimes causing a derailment, is considered to be the best, the point rail being left a little crowning near the point. We consider that we have the best switch in this country.

"In rail frogs, it was thought by the majority that a rail frog should have a plate under the point. This has been contrary to our practice, but we are making some now in that way.

"The question of spring frogs versus rigid frogs was decided generally in favor of the spring-rail frog. It requires to be especially noted that unless spring-rail frogs are made in a perfect manner they are not safe, and the majority of spring-rail frog manufacturers in this country do not have the best pattern.

"It is my judgment that a well-made spring rail frog has no superior, and the same may be said of a split switch. It requires a knowledge of the weak points of both of these by those who use them, otherwise they are liable to have accidents with them. No split switch can be considered safe unless it has rail-brace chairs upon it, not less than five on each side, in order to avoid the tendency of the moving rail to fall below the level of the main rail.

"The conclusion in regard to No. 6—life of steel rails—with present traffic of our road, which is probably about 7,000,000 tons per annum, was about nine years.

"In regard to No. 7—track bolts—the unanimous opinion was, of course, against water-cut bolts. We have had a great deal of trouble with water-cut bolts. Manufacturers, in order to meet the market, have furnished water-cut bolts, and of these complaint has been made. Some have used water for cutting them, and afterward dipped them in oil.

"Nothing but an oil-cut bolt should be used, as the water-cut will rust and give a great deal of trouble. Dipping in oil will not do—such was the decision.

"In regard to ballast, there were some objections urged to furnace cinder as a ballast, claiming that it rotted the ties; but furnace cinder used with gravel on top was thought to have no superior.

"No. 9—safety guards—was a most important question. This matter has agitated several states and has been the cause of anxiety to all railroad men who are anxious to save the lives of employes. The question here is what device can we use for preventing men's feet from getting caught in frogs, switches and guard rails, and at the same time to use some device that will not endanger the trains.

"The decision upon this was that every one should use wooden blocks at once, made in the shops, and make a full test. This plan has been used with moderate success by some roads. We do not know anything better than this, though we have tried various methods.

"Question 21. What is the limit of transportation of a single-track road, is a most important question, and you will see the two papers sent herewith.

"This will give an idea of the discussion upon some of the important points. The whole discussion will appear in our proceedings, and when published, will be sent you for examination."

#### The Lackawanna and the Joint Executive Committee.

Mr. Albert Fink has addressed to the New York newspapers a letter, in which, after describing the circumstances which gave rise to co-operative associations of railroads like the Joint Executive Committee, and showing that their object, the maintenance of regular through rates alike by all lines and to old shippers, are legitimate and beneficial to the community, he says:

The continuance of these beneficial methods had been jeopardized by the policy adopted by the Delaware, Lackawanna & Western Railroad. When that company first opened its road for business to Buffalo, it was invited to join with the others in efforts to maintain the reasonable tariff rates then in existence, and assurance was given that the individual interests of the Lackawanna Railroad should not only be protected, but promoted by such co-operation. These offers were declined, and the Lackawanna Railroad, instead of maintaining the through tariffs of the other companies, made large reductions. Its right to do so, so far as freight for points on its own road is concerned, is not questioned, but it has no right to reduce rates over the connecting roads without their consent. If, however, the Lackawanna Railroad in doing this had adopted the plan of publishing its tariff, whatsoever that tariff might have been, the other roads could have made the same rates, and all roads, as well as all shippers, would have been on an equal footing. But this plan did not suit the Lackawanna Railroad. That company commenced by taking rates which discriminated unjustly between shippers over its own road as well as between them and the shippers over the other roads. This method of doing business, while acceptable to the favored shippers, is condemned by every consideration of public policy. The other companies are ready to agree upon any tariff that the Lackawanna Railroad might deem proper to make and conform to the same. But this tariff should be known and made public, and not changed from day to day at the pleasure of any one com-

pany. This, however, did not suit the Lackawanna Railroad. That company wanted to charge less than other roads. It did not publish its tariff. It made private arrangements with shippers, varying with various shippers, and simply for the purpose of gaining thereby a larger amount of traffic. This state of affairs has been allowed to continue so long that it has become impossible for the competitors of the Lackawanna Railroad to longer maintain reasonable tariffs, and has made it necessary for them to either adopt the same objectionable policy that has been adopted by the Lackawanna Railroad, which means a general war of rates, with all the consequences and results to the railroads and to the various other interests affected thereby, or to adopt such measures as may be possible to protect themselves. Yet, if the Lackawanna Railroad had only insisted upon "asserting its right to fix its own rates—in other words, to manage its own business to suit itself," the other railroads engaged in the same traffic would have no reason to complain. The mischievous results of this policy would have been confined to narrower limits, more particularly to the local business of the Lackawanna Railroad. But with this that company was not content. It has lately entered upon a system of making private contracts with a large number of shippers at greatly reduced rates, embracing shipments to almost every point in the country, as far as the Pacific Coast. These contracts were made not only without any authority from the roads west of Buffalo, which are common connections of the Lackawanna road and the other trunk lines, but this action was taken in direct violation of the written contracts made by the Lackawanna Railroad with some of these connecting roads, which stipulate the conditions under which the Lackawanna Railroad should exchange through business with said roads to enable it to extend its business beyond its own terminus. These agreements with connecting roads specifically provide that the through rates over the Lackawanna Railroad shall not be lower than those via other competing roads. The justice as well as the necessity of such a condition must be apparent when the relations of these connecting roads to the other trunk lines are understood. These roads also have agreements with the New York, Lake Erie & Western and the New York Central & Hudson River railroads for through lines, and it would be unjust and improper, in every sense of the word, if they were to carry freight from Buffalo west coming from the Lackawanna Railroad at lower rates than they carry freight coming from the Erie and New York Central. Considered, then, merely as a contract obligation and an act of good faith, can it be called boycotting when these western connecting railroads give notice to the Lackawanna, as they have done, that they will receive no freight from the Lackawanna Railroad upon the terms dictated by that company, terms expressly prohibited by their contracts for through traffic, and at rates lower than they receive for carrying freight from Buffalo for their other connecting roads? From a legal standpoint have they a right to carry such freight at a less rate when the Lackawanna chooses to bring it to them than they charge when the New York Central or Erie brings it to them? Instead of boycotting, are not these Western connecting roads, in refusing to make themselves parties to the arrangements of the Lackawanna Railroad, carrying out the obligations which the common law enforces upon them? In making these contracts at reduced and varying rates with different shippers, the Lackawanna Railroad no doubt relied upon the co-operation of the Western roads to aid them in making these reductions for the sake of securing thereby some additional business. The course taken by these Western roads in refusing to make themselves parties to such illegal transaction shows that they value their contract obligations and their obligations as common carriers higher than they do the temporary advantages which they might derive by a departure from these sound principles.

This is not the only view to be taken of the policy adopted by the Lackawanna Railroad. There is another, and one of self-interest, which as the faithful trustees of the property in their charge the managers of these connecting railroads cannot leave out of consideration. The railroads represented on the Joint Executive Committee, and which are making these efforts to maintain reasonable tariffs and equal rates to all shippers for the same service, operate about 25,000 miles of road. The length of the Lackawanna road from New York to Buffalo is 410 miles. The policy pursued by the managers of these 410 miles of road affects the revenue, on the class of business under consideration from the seaboard over all the roads represented upon the Joint Executive Committee. Shall they make themselves parties to an unnecessary reduction of their revenue and incur the risk of a war of rates, or have they a right to protect their properties? That is the question they have now answered. They have declared and have officially notified the Lackawanna Railroad Co. that they will not be parties to transactions which are likely to result to the injury of their property as well as that of other railroads all over the country, and who are not parties to this controversy.

It is one of the peculiar features of the railroad property, and one little understood by the public, that a single railroad manager, unable to foresee the final consequences, and in his endeavor to gain a few thousand dollars for his company, may throw into bankruptcy one-half the railroad property of the United States, including his own. While there are laws to punish a man who sets his own house on fire to gain some advantage, and thereby destroys the property of his neighbors, there are as yet no laws to prevent a railroad manager, if he so desires, or fails to recognize the responsibility of his position, from managing his own property so as to ruin the property of others. The sympathies of the public, strange as it may appear, are generally on his side, because the public are not informed as to the final consequences and seem to think that they are benefited by ruinous contests between railroad companies.

In the early history of railroad management the idea prevailed that a railroad company could "manage its own business to suit itself." The general bankruptcy of railroad property in the past was no doubt caused, in a measure, by this mistaken theory. Some one railroad, only 100 or 200 miles long, can disturb the whole adjustment of railroad tariffs and affect thereby the railroad earnings of one-half of the railroad companies in the country. A road in that position would be the real manager of all the others, as far as the revenues of these companies are concerned. These being the conditions under which railroad property has to be managed, the true plan is that of co-operative management, a management in which the interests of each particular road can be fully guarded, but where its own course is to be restricted, at least so far as it is to the interest of all, and consequently to its own interest; for such is the situation in this country that no single road can be properly managed when others are not. For these reasons I think the moral and legal right of railroad companies to associate and protect themselves against the irregular and illegal action of one individual road will not be denied. The steps taken by the connecting roads of the Lackawanna Railroad are taken for that purpose alone. These roads have simply said to the Lackawanna road: "As you are not willing to maintain the tariffs which are maintained by other roads to

whom we give like facilities, as you insist upon operating your road simply in what you deem to be your interests, without regard to our interests, we will not be parties to any through arrangements with you. We will not allow you to use our property for the purpose of destroying our revenue. Nevertheless, we will carry our freight when you deliver it to us at Buffalo at the same rates that we charge other railroad companies which deliver us freight from the same point consigned to the same destination. But we will no longer act as your agents. We are acting in accordance with your pronounced principle that you can manage your own affairs without our help and assistance. If you want our help and assistance you must comply with the conditions and the rules and regulations governing our arrangements with our other connections."

The Lackawanna can adopt and conform to the rules and regulations under which railroad companies exchange business with each other, but, not desiring to do so, it cannot expect to extend its operations and become a forwarder of freight beyond the line of its own road. It is for the Lackawanna Railroad to decide which policy it will pursue. But it has no right, nor has the public, to complain of the action taken by the Western roads in refusing to become business partners with that road.

#### The Joint Executive Committee and the Lackawanna Road.

The letter of Mr. Fink, as Chairman of the Joint Executive Committee, sent Jan. 5 to Mr. Samuel Sloan, President of the Delaware, Lackawanna & Western Co., announcing the action to be taken by the committee in consequence of that company's failure to maintain rates, is as follows:

I herewith inclose letters of Mr. Newell and Mr. Caldwell, also telegrams of Messrs. Hickson and Ledyard, notifying you of the discontinuance of through traffic arrangements with your company, under the joint notice given you Nov. 8, by the Lake Shore & Michigan Southern Railway, the Michigan Central Railroad, the New York, Chicago & St. Louis Railway, and the Grand Trunk Railway.

It is proper that I should communicate to you the reasons which have led these companies to take this step, the necessity for which they very much regret.

Ever since your road was opened to Buffalo you have refused to be guided by the established all-rail rates charged by the other first-class all-rail lines. You have made such rates as you deemed proper to secure such an amount of business as you wanted, and your competitors have, except in a few instances, abstained from meeting your rates, in order to avoid a general war of rates. You have thus availed yourself of their conservative disposition to secure traffic at reduced rates. This state of affairs continued until the 15th of November last, when, upon representations being made to you (as they have so often been made) that your action was demoralizing and injurious to the best interests of all the roads, you at last agreed to become a party to the trunk-line agreement for division of traffic from New York and to maintain rates after the 20th of November.

The question as to the percentage of business that should be carried by your road was left open for further negotiations. After analyzing the business which your company had transacted, and of which you furnished me the statistics, upon my best information and knowledge as to what was just and right to all parties, I suggested that the percentage of tonnage which you had secured in the last ten months of last year at reduced rates should be increased so as to give you 50 per cent. more net revenue than you had obtained during a period when you made your rates regardless of the established tariffs. As it was not probable that you could get as much business under even rates as under reduced rates, when the other lines were maintaining tariffs, the proposition made to you is, in my opinion, equivalent to giving you at least twice or three times as much revenue as you could possibly obtain under open competition, or under even rates.

This proposition you declined. You also declined to submit your claim for a greater percentage to arbitration before a disinterested tribunal, by whose decision your competitors agreed to abide. In the meantime, while these negotiations were being carried on, and when you had promised that you would do nothing to imperil the present arrangements, your company entered into a large number of contracts to carry freight at a reduction of 20 per cent. from tariff rates. The policy of making contracts at a certain reduction from tariffs established by your competitors is not only unwise on business principles, but it was also in direct violation of good faith after you had agreed to maintain tariffs and become a party to the New York division. I have formerly expressed my belief to you that you did not intentionally authorize such action. Nevertheless it was taken by your agents, and it is now impossible for your road, under the many contracts that have been made at reduced rates, to maintain the established tariff and to avoid a general war of rates, involving the reduction of the revenues of all your connecting roads, unless these connecting roads are in a condition to protect themselves against the unauthorized and unwise action of your company.

The right of your company to make as low rates as you deem proper is not denied. But this right you cannot exercise for your connecting roads west of Buffalo. They have agreed upon certain rates with the other trunk lines; they have also agreed not to make time contracts, and they are, therefore, under obligations to the other roads, with whom they transact a large business, to carry out their agreements. They have not given and cannot honestly give you any authority to contract freight for shipment over their roads west of Buffalo at reduced rates. They have not only a perfect right to refuse to carry out your contracts, but in good faith toward each other they are obliged to refuse to carry them out. You cannot expect to enter into partnership with these roads in the forwarding business for your benefit, when you have done all you can by your action to involve them in a war of rates and bring about a reduction in tariffs which they had agreed to maintain with the other connections, and which they did not think excessive or unreasonable.

Your refusal to transact business with your Western connecting roads under the established and published tariffs and under the rules and regulations which these roads have found it necessary to establish among themselves and with their other connecting roads, makes it necessary that the notice given to you by the Michigan Central, the Lake Shore & Michigan Southern, the New York, Chicago & St. Louis and the Grand Trunk Railroad companies, on Nov. 8, must now be enforced.

These companies, commencing with Monday next, the 14th inst., will not be parties to any through bills of lading on west-bound freight in connection with your company, and you will please not have your agents issue such through bills over their respective roads; neither will these roads pay any back charges to your company. All freight which may be consigned to these roads, coming over your road,



and delivered to them at their respective depots, will be billed as originating at the points at which it is delivered, and at the full proportion of the established and published tariffs, or at local rates, according to the destination of the freight.

These regulations will remain in force until you conform to the established and published through tariffs and act in accordance with the rules and regulations governing the traffic arrangements of these companies with each other and with their other connections.

I have made every effort in my power to avoid taking these steps, with the hope that you would finally find it to the interest of your company to co-operate with the roads represented on the Joint Executive Committee. I regret that I have been unsuccessful in these efforts.

It now remains to be demonstrated by practical experience whether the policy you have adopted is wise or whether it would have been wiser for you to have joined with the other companies in carrying out the methods adopted by them and which they think are necessary to their interests, to the general interests of the railroads and to the interests of the public.

#### A Hint to Investors.

It has been obvious, for a long time past, that a great and unreasonable distrust of railroad stocks and securities has taken possession of the public mind. Small investors all over the country who, a few years ago, looked directly to railroad stocks and securities as promising the best field for profitable investments, now look anywhere else rather than in that direction. The reason for this change of sentiment is not difficult to understand, for it is manifestly the result of the disappointments and the large losses which have been made through such investments. It is the reason which suggested the maxim, "The burnt child dreads the fire." This old saying, however, carries with it a moral, which is not against the value and usefulness of the fire, but which tells rather against the childish want of caution in dealing with it, and the lack of a due appreciation of the dangerous properties of that element. The lesson of the burns and scars received by childlike investors in railroad properties, and which now makes them so timid and distrustful, is similar in character. It is not railroad investments, in themselves, which have proved so damaging, but the selection of the investments, which have been made in many cases without investigation, and with little knowledge of their merits.

It is not too much to say that many of the investments which are made—by holders of small amounts of capital especially—have been entered into through a blind confidence, rather than through any real comprehension of the financial condition or business prospects of the properties selected. Even those who pride themselves upon being business men, when entering the stock market, seem to take leave of their business shrewdness and to lose sight of the landmarks which are their guide in other transactions. If they were buying houses or lands they would take nothing for granted, but see that there were no mortgages or attachments or any liens to affect the value of the property. But when it comes to buying stocks, all similar precautions are apt to be neglected, the faith of the broker in the future course of the market being substituted for any personal examination into the real and substantial merits of the investment. Too many do not even think about or care for information affecting real value, but buy stocks simply because they think they are going higher. Such blind confidence, when general, is a powerful factor in sustaining prices, prices continuing to go up simply because they have been going up. Their advance in the past, if considered at all, is not looked upon as having possibly reached or exceeded the real value, but is rather deemed an impelling force which will carry them still higher.

But this momentum is lost in time, and the one test which sooner or later must be applied to all investments clamors for recognition; and that is, the profit which can be derived from them. It is true that the future properly enough may be discounted to a certain extent, but it is hazardous to trust too much to that unknown factor, for the brightest prospects are frequently overshadowed by unforeseen contingencies. In investing in railroads, by those who wish for early and sure returns, it is therefore important that, as far as possible, the real condition of affairs should be known. The investor should know what the road he selects is earning now, and not be contented with great expectations of what it will be capable of earning in the future. A road that for years has had a business which enabled it to pay regular dividends and to improve its property all the time, presents something tangible and substantial, and although its price be high, yet to the ordinary small investor who cannot afford to make a loss, it is worth all it costs. An investment at 160 which pays 5 per cent. regularly is better than one at 50 which promises much more, but pays nothing except in drafts upon the future.

The great railroad properties of the country are generally in a sound and healthy condition, and they still afford a field for investment as little hazardous as can be found in any other class, if due care is taken in selection. All years may not be equally prosperous, but it is to be remembered that railroads are not built for a year, but for all time, and also that investors in other kinds of property are liable to meet with similar drawbacks. In fact, it may be said that the average prosperity of the business of the country is better reflected in the prosperity of the railroads than in anything else. If the railroads, prudently built and operated, do not succeed in doing a profitable business it will generally be found that many other kinds of business are even less profitable, and therefore should be less attractive to the investor.

The question of what to buy cannot be answered in detail, but small investors who need a return for their money, and cannot afford to make a loss, may find in the above suggestions a hint, at least, as to what not to buy. For them it is certainly unwise to pay high prices for little but bright prospects and great expectations, while realizations are very uncertain. A small house on the ground is better than a castle in the air, and if its modest appearance is not so fascinating, it is at least practical and substantial.—*Boston Daily Advertiser*.

#### The Development of the Clearfield Coal Region.

The railroad and mineral development in the central northern portion of Pennsylvania during the past year, and now in progress, is remarkable. The initial movement in this direction was the building of the Pine Creek Railroad (practically from Williamsport by way of Jersey Shore), northward along Pine Creek through Tioga County, and by way of the Fall Brook and Magee system of railroads to Geneva and Lyons, on the New York Central Railroad. This line is now completed and in operation, crossing the Erie road and the other lines running westward through New York. It takes up large quantities of anthracite coal tonnage at Williamsport, received from the Reading system, and sends it northward and westward, much of it finding

its way to Northern New York and New England. It develops and opens for the first time a direct connection with the county of Tioga, which always heretofore has been obliged to find its way into the state of which it is a part by way of New York through Elmira. It is understood that the ownership of this line, in its connection with the Magee system, is in William H. Vanderbilt. This gives the Reading lines a complete outlet for hard coal north and west by friendly lines. To supplement this a connection is made at Jersey Shore by the Beech Creek, Clearfield & Southwestern Railroad, of which Senator William A. Wallace is president, and the capital of which is largely controlled in New York and Philadelphia. The purpose of this line is to reach the soft coal fields in Clearfield County and carry their products east and north. This line will be about 100 miles in length. It follows the Susquehanna West Branch Valley by way of Lock Haven to the Bald Eagle Valley; thence, leaving that valley, it follows the valley of Beech Creek through Centre and Clinton counties, by way of Snow Shoe, into Clearfield County, reaching the West Branch of the Susquehanna west of the Allegheny Mountains at Clearfield and pushing southward toward the source of that stream. The gradients upon this line are nowhere over 52.8 ft. per mile, and the Allegheny Mountain is crossed between Beech Creek and Clearfield. The capital that is building this line also owns 33,000 acres of coal and coal rights upon its route. The organization controlling this is known as the Clearfield Bituminous Coal Co., and its capital is \$5,000,000, of which two-fifths are preferred stock. Gen. C. J. Langdon, of Elmira, is President of the company. He is well known in hard coal circles as the son and one of the successors of Jarvis Langdon, of Elmira, recently deceased, one of the most energetic and wealthy men of Southern New York. He also has had control of the McIntyre Coal Co., which has heretofore sent its soft coal from Lycoming County by way of the Northern Central road. The Clearfield Bituminous Coal Co. has in the past year begun the development of its property, and has erected a town of about 150 houses in Clearfield County, on the line of the railroad. This town is known as Peale. The systematic development of its property is going on, and it will be in readiness to ship coal by the Beech Creek road eastward about the 1st of April. About 23,000 acres of the property of this company lie in the vicinity of Peale. The remaining 10,000 acres are distant some 35 miles in a southwesterly direction and about 12 miles south of the town of Clearfield. Upon these lands large quantities of the now famous Houtzdale vein in good condition are found, and explorations demonstrate that all of the remaining coal seams of the lower Freeport bed are upon this land in good condition. The railroad from Jersey Shore and Clearfield, which is to develop and send out this coal traffic, is graded into Clearfield County, track laying is progressing, and the bridge across the Susquehanna below Lock Haven is having the iron spans placed upon it. This work has been pushed with great vigor under the control of General Magee, the contractor. This road is being built upon actual payment by cash subscriptions, and will cost at least \$50,000 per mile. It will give to the Reading system the first outlet it secures west of the Allegheny Mountains, and place upon its lines large quantities of soft coal. The coal produced is demonstrated to be a good coking coal, and the product of the region in that form, we are informed, can reach the Eastern market for use in the furnaces along the Lehigh and Delaware at less cost while of equal quality with that from Connellsville. A branch of this line is being constructed to Phillipsburg, at which point the Tyrone & Clearfield Branch of the Pennsylvania Railroad now finds a large amount of its tonnage. There is rivalry between this line and the latter, and there will be competition, but up to this time there seems to be no feeling of bitterness between them. The output over the Tyrone & Clearfield road alone in tons this year approximates closely to three millions. The capacity of that line, with its heavy grades and excessive curvature, is very nearly reached in sending raw coal over it, and when it is said that an average of 600 loaded cars daily passes down its grades along the eastern slope of the Allegheny to make connection with the Pennsylvania main line at Tyrone it will be seen what an important feeder that line is to the Pennsylvania system. All of this coal goes eastward and northward.

The exploration of the Clearfield Region by the engineers of the Beech Creek & Clearfield line, and the fact that capital has been obtained through the efforts of Senator Wallace and his associates to build that line, has stimulated the efforts of the Pennsylvania Railroad people. Surveys have been made in every locality within the county of Clearfield, and lines projected to make connection with that system. The Tyrone & Clearfield road is now pushing its line from Curwensville southward into another coal field west of that point. It is making surveys and extending its line in the Houtzdale field, so as to thoroughly grasp and control all of the tonnage there. Under its auspices the Bell's Gap Railroad, which connects with the Pennsylvania main line at Bell's Mills, has been widened from a narrow gauge to the standard gauge, and is now completed into Clearfield County on its southern side. This taps the valley of Clearfield Creek, and reaches large coal deposits there, and it seems to be the ultimate purpose to connect that line with the Houtzdale Branch by pushing down Clearfield Creek. The Bell's Gap road has also made explorations and located its line westward through southern Clearfield County, crossing Chest Creek and the West Branch of the Susquehanna to Punxsutawney, in Jefferson County. This line will traverse coal measures for almost its entire distance, and develop an unknown section. While existing lines take coal northward from Punxsutawney, this extension will give it an outlet eastward by the main line of the Pennsylvania. This Bell's Gap extension passes immediately south of the Vanderbilt body of lands, composed of 10,000 acres, and crosses its contemplated line of railroad, the one going southwest and the other westward. Another improvement by the Pennsylvania Railroad in Clearfield County is just now being put into operation. This is known as the Susquehanna & Clearfield Railroad. It leaves the Philadelphia & Erie Railroad at Keating, at the mouth of the Sinnamahoning, and thence follows the West Branch 26 miles southward to Karthaus. This line traverses soft coal of good quality for at least half its distance. Karthaus is the point at which the first furnace was erected in the state for the manufacture of iron from bituminous coke. This was undertaken as early as 1836. It was successful as an experiment, but was a financial failure, owing to the practical difficulties in the way of transportation. The coal at this point is of a very fine quality, but the area is somewhat circumscribed, and the line from Karthaus will ultimately pass up the river or southward to a connection with the Tyrone & Clearfield road. The effect of these developments and extensive railroad building is to largely increase the population of Clearfield County and to rapidly develop its fine bituminous coal field, which is the nearest of large extent and good quality to the Eastern seaboard. The extension of the Vanderbilt line, with its branches and improvements, and the extensions of the Pennsylvania to compete therewith, will give to the producers of coal now there, or who may

enter the field, very valuable additions to the present facilities for transportation, and largely increase the output as well as enable the producers of the region to prevent Cumberland coal from underselling them in the Eastern and Northern markets.—*Philadelphia Ledger*.

#### Transportation in Congress.

In the Senate on the 11th:

The resolution of Mr. Van Wyck, directing the Secretary of the Interior to suspend action as to issuing patents or certificates for land granted to the New Orleans Pacific Railroad Co. until Congress shall at this session determine the questions involved in the claim of said corporation, was taken up and passed, after some amendment in form.

Mr. Van Wyck, from the Committee on Improvement of the Mississippi River, reported a joint resolution making immediate appropriation of \$1,000,000 for the continuance of the work of improvement already entered upon by the Mississippi River Commission.

This was discussed at some length and amended by the addition of the words, "provided that the money hereby appropriated shall be used solely for the improvement of the navigation of the Mississippi River, and no part thereof shall be expended with the view to the improvement of private property."

With this amendment and the change of the measure from a joint resolution to a bill it was passed.

The Sub-committee of the House Committee on Public Lands, to whom was referred the question of the order in which land grant forfeiture bills should be considered, reported, at the meeting of the committee, Jan. 11, that the consideration should be begun immediately, and in the following order: Texas Pacific; Oregon Central; Ontonagon & State Line; California & Oregon; Oregon & California; Northern Pacific; Atlantic & Pacific; Southern Pacific of California; New Orleans, Baton Rouge & Vicksburg; Atlantic, Gulf & West India Transit; Pensacola & Georgia; Florida, Atlantic & Gulf Central; Mobile & Girard; Selma, Rome & Dalton; Vicksburg, Shreveport & Texas; Sioux City & St. Paul; Chicago, St. Paul, Minneapolis & Omaha; Wisconsin Central. The report was adopted by the Committee.

The House Committee on Railways and Canals has decided to consider immediately the Hennepin Canal and the Maryland & Delaware Ship Canal bills.

In the House on the 14th:

Bills were introduced as follows: By Mr. Belford (Cal.), to promote the public welfare by securing reasonable rates of transportation over railroads aided by the issue of a large amount of United States bonds.

It recites that the annual reports of the Union and Central Pacific railroad companies show large sums as net earnings over and above 10 per cent., and provides that the tariff charges on local and through freight of these companies be reduced to one-half the average rate existing in 1882 and 1883 without regard to classification.

By Mr. King (La.), providing for closing gaps in the levees of the Mississippi River, and for the improvement of the navigation and commerce of said river.

By Mr. Covington (Md.), authorizing the Washington & Atlantic Railroad Co. to extend its tracks into the District of Columbia.

#### Limit of the Capacity of a Single-Track Railroad.

At the annual meeting of the Road-masters of the New York, Pennsylvania & Ohio Railroad recently, one of the questions submitted was the above, and Mr. H. C. Thompson and Mr. Augustus Mordecai, assistant engineers of the road, both submitted papers on the subject, which we publish below:

MR. H. C. THOMPSON:

In answer to the question, "What is the limit of a single-track railroad in transportation of freight?" I do not pretend, by the following remarks, to advocate that the formula presented will show positively what a railroad can practically do, because there are so many elements of detention, and "their name is Legion," entering into the practical running of a railroad which it is impossible to formulate, and which thus far have not been eliminated by our best practical men. But they are submitted as a foundation upon which to build. No correct conclusions can be had without a base upon which to start, and hence in giving a positive determination of the maximum capacity of a railroad, with all the unprovided-for detentions eliminated, we have a tangible starting point to successfully and properly answer the question when presented to the management of a single-track railroad, whether or not the time has arrived for building the second track.

#### FORMULA.

Let  $l$  = Length of division or road in miles.

"  $t$  = Time in hours in running the division.

"  $S$  = Average speed in miles per hour.

"  $D$  = Distance in miles between passing points.

"  $a$  = Number of cars per train.

"  $C$  = Capacity of road (both ways) per day of 24 hours.

$$\text{Then } C = \frac{Sa}{D} = 24$$

Were all parts of a road equally easy to run over—that is, were the alignment straight, the gradients level, the rails in good surface and line, the passing points exactly placed to suit the speed at which it was desired to run the trains, the trains all of the same class, the power and cars perfect, with no inclement weather or accidents to contend against, the question could be easily answered and a time table arranged

from the simple formula  $\frac{S}{D} = C$ , which would represent

the maximum number of trains which could be run both ways. To illustrate, let the speed per hour be placed at 15 miles, and the passing points 7.5 miles apart, then  $\frac{S}{D}$

would equal  $\frac{15}{7.5}$  or 2 trains per hour (both ways). In-

crease the speed to 30 miles per hour and, having the passing points the same distance apart, we have  $\frac{S}{D} = \frac{30}{7.5} = 4$

trains per hour both ways; and again calling  $S = 20$  and

$D = 5$  we have  $\frac{S}{D} = \frac{20}{5} = 4$  trains per hour (both ways).

From this we see that, theoretically, the number of trains per hour depends upon the speed and the distance between the passing points, and the one depends upon the other. That







we do in the other, taking merely the second reason with the same class of trains only to meet, and supposing side tracks five miles apart, holding one train, with a uniform rate of speed, we could dispatch the trains at such intervals of time as it would take a train to go to the first siding and the one on that side to come to the terminus. This would be 35 minutes, supposing five minutes of time is spent in taking the side track, or 41 trains a day, not allowing any stops for water, railroad crossings, etc. Fuel and water should be taken while standing on the side track. If the side tracks, instead of holding one train, would hold three, we could dispatch three trains every 55 minutes, say every hour, or 72 trains a day. On this line of argument, therefore, if a road is run to its full capacity, such capacity is determined by the length of the shortest side-track and the longest distance the side-tracks are from one another, or, if the speed is increased so that the same time will be occupied in running from one side-track to another, as by the shortest distance between the side-tracks; but we have, say, four passenger trains during the day each way running at the rate of 40 miles an hour, which have to pass all the trains going in the same direction and meet the passenger and freight trains coming in the opposite direction, as well as stop for passengers, which, however, we will for the moment discard; there will be 20 trains on the road to pass, and 21 to meet, and as a result of giving the passenger trains a clear road we must have all the side-tracks long enough to hold the freight trains going in both directions, and some long enough for the passenger trains going one way, and if the passenger trains are run at regular intervals of six hours each the freights must stop six times on their journey ten minutes more than they would otherwise. This would decrease the number of trains to 39 each way; and if we suppose the passenger trains have to stop every 10 miles five minutes for passengers the number of trains each way would be reduced to 27. This is on the assumption that we have only side-track room to run one train at a time, and it discards all consideration of local freight trains, which should have a yard for themselves if the business cannot be done while waiting for trains.

For the purpose of comparison I have made from the railroad reports of the year 1881, as found in the last "Poor's Manual," a table showing the lengths of 13 different roads, the length of their side-tracks, the amount of tons carried, and the equivalent number of daily trains as determined by the reported engine mileage. I find the New York Central runs an equivalent of 60 trains a day both ways, both passenger and freight, over its entire road, and has the enormous amount of 164 per cent. of side-track; that is, allowing 100 miles of side-track for terminal facilities above the necessities of other roads, it has two and a half times more track than the entire length of the road operated and reported. The Pennsylvania, doing nearly exactly the same amount of business, has 51 trains and 70 per cent. of side-track; Boston & Albany, 49 trains, 118 per cent. of side-track; Erie, about four-fifths the business, 45 trains, 90 per cent. of side-tracks; New York, Pennsylvania & Ohio, 30 trains, 85 per cent. of side-track; Pittsburgh, Fort Wayne & Chicago, 27 trains, 54 per cent. of side-track; Cleveland, Columbus, Cincinnati & Indianapolis, 24 trains, 30 per cent. of side-track; Chicago & Northwestern, 12 trains, 9 per cent. of side-track. The Chicago, Burlington & Quincy, the Union Pacific and Central Pacific have about 20 per cent. of side-track each, but I have no information that will enable me to give the number of daily trains. This table, though showing to some extent what is actually done, is intended more for comparison, as it is very hard to make an exact statement from the reports made by different railroads, but making all due allowances for the difference in business handled by the different roads, and the importance of their several branches, it shows, I think, that the New York Central is by no means working up to its capacity. It may be true that freight is handled quicker, but this cannot be of great moment, as shippers of perishable freight do not seem to give it a very great preference over rival lines.

Also to find, if possible, where delays to trains mostly occur, I took the daily train sheets on two divisions of the New York, Pennsylvania & Ohio Railroad and compared the time actually made by the trains with what they should have made by the time card. I also divided the divisions into thirds and compared the actual time with the schedule time. The divisions are about the same length, 100 miles, but as regards side-track facilities they are not equal, the average distance apart of the side-tracks being nearly three-quarters of a mile shorter on one division than on the other, and the average length of side-tracks half a train longer and the grades somewhat lighter. The work performed was about the same, about 950 freight cars handled both ways over each division by about 40 trains. There were besides eight passenger trains both ways on each division, making their schedule time.

The details of this analysis would probably only be interesting to the officials of the New York, Pennsylvania & Ohio Railroad, but they show that about one-third of the freight trains left on time, about one-sixth arrived on time, one-fifth made their schedule time, the remainder running from one to 12 hours late. Most of the delays seemed to have occurred in getting through local towns and into terminal yards. There does not seem to have been much difference between day and night trains, but the latter lost a little more time than the former. The days taken were in September, 1883, when the road was crowded with business and working to its theoretical capacity.

This investigation, superficial as it is, seems to show the simple fact that in local yards there should be a yard for passing trains distinct from that used for local business, and the switching engine should not be obliged to occupy the main track of the sidings used for passing trains; at terminal points the sidings should be extended so that departing trains should not wait for arriving trains to come into the yard proper, often occupied by the switching engine, but could pass them as they would on the road; that conveniences for obtaining water and fuel should be so furnished that trains could procure them while waiting on the side-track, and not be obliged to occupy the main track.

It would seem that railroad companies are too much afraid of investing in side-tracks; a side-track 2,000 ft. long would many a time relieve business very much; the interest on the investment, even at 10 per cent., would not generally be over \$300, which is a very small amount compared to the damages, both direct and indirect, caused by loss of time. There are times, to be sure, when the road is pushed, and it might be poor policy to increase the side-tracks to accommodate that temporary rush of business; but if the tracks are judiciously placed as parts of a system to be carried out in the future it cannot be a poor investment, as they are essential to the running of the road.

#### English Tramways.

Some interesting details as to the amount of capital employed in the construction of tramways in the United Kingdom have been published in a parliamentary paper. The total length open in England, Scotland and Ireland on the 30th of June last was 671 miles, the construction of which had cost \$48,750,000, or about \$72,650 per mile, including in some cases the cost of equipment. These figures refer to 28

tramways belonging to local authorities and 113 belonging to other than local authorities. The 141 lines are worked with 20,122 horses, 117 locomotive engines and 2,819 cars. During the year ended June 30, 1883, 295,721,171 passengers were carried over the lines, the gross receipts being \$11,060,000; the working expenses \$8,762,000, and the net receipts \$2,298,000. A calculation from these figures shows that the number of horses required per mile during the year is 30, the number of horses to a car about seven. The number of passengers to one horse during the same period was 14,696, and the average number of passengers carried by each car during the year was 104,902. The average fare per passenger was about 3.74 cents.—*Pull Mail Gazette.*

#### THE SCRAP HEAP.

##### Chances of Railroad Employes in Australia.

Mr. J. W. Spurr, writing from Australia to the *Indian Railway Service Gazette*, says:

"As if by the irony of fate, the same post that brought out your journal of the 25th and 30th August last, in which is distinctly pointed out the drawbacks for Anglo-Indians to emigrate to Australia, a very respectable young man, who has held a post at one time of Assistant Locomotive Foreman on your state lines, wrote to me to use my influence to get him employed on the railway here, and stating he would sail such a date, and when the letter reached me he would have left India by P. & O. steamer. I have written to him at a port of call, stating he will be fortunate to secure a fireman's post, and must not be surprised if a cleaner's position is offered. He is a mechanic, but having no English indentures will be fortunate if he secures a billet as a fitter's laborer. In India if vacancies occurred, it was possible for me to recommend a steady man to the officials of a line, and for him to obtain employment, but out here things are so different that it is impossible to make things clear to your Indian readers. Railways are state appliances, and to a certain extent positions in them are a sort of state patronage. Each railway has a large stock of cleaners—as in England—who work up to drivers by conduct, length of service and passing examinations. I read a complaint about railway examinations in India. I rather think if those who wrote that *whine* (I can give it no other name) should have to face an examination out here, they would soon find brains as well as muscle are urgently needed, and that the latter is also called into full play. I may state that the work out here is carried out on English principles, but owing to the coal and water—two important factors in locomotive work—being inferior, the work is far harder. Men coming to Australia must expect at least two years' cleaning (usual term four years), four years' firing (usual term six or seven years) ere they get a driver's post. There are special times when one or two men might fortunately drop in for a better chance. Certainly in South Australia (Adelaide) there is no society, but in Melbourne and Sydney the societies demand that all men employed shall start at the bottom and work up. This is the rule on all the older lines in England, and it is the rule generally followed out here. In the Traffic Department I know of several men who were station masters in India and are now only porters out here."

The Australian railways make it a point to provide employment for the men they train to the work, and not as in India import covenanted men from elsewhere; besides should men emigrate to Australia by the government assisted emigration scheme, they are first provided for; the man who pays his fare to these colonies has to do the best he can. The headquarters of railways are far distant from each other; Melbourne is 800 miles from Adelaide, Sydney 550 miles from Melbourne, Brisbane (Queensland) 1,000 miles further, and the cost of traveling three times the amount in India—railway fares being at rate of one anna [3 cents] per mile in the lowest class.

##### 24 o'Clock Not New.

The idea of numbering the hours of the day from 1 to 24 is still prevalent in Southern Italy, and was known in France over 300 years ago. A prominent clock company has for some years made small nickel and gilt clocks for China which show 24 hours on the inner circle of the dial, the two 12's being where, on English dials, the 12 and 6 are, with 1 to 11 between. The clock strikes up to 12 and then begins again. The long hand goes round once in two hours, and the short hand once in 24 hours. Outside the inner circle of the dial are 12 Chinese characters, which, we suppose, indicate time as we are accustomed to mark it. Outside this circle are eight other Chinese characters.

##### Locomotive Cab Burned.

While a locomotive engine was running a train on the Lebanon Valley Railroad, in Pennsylvania, recently, a flue burst and stopped up the stack, throwing the flames out into the cab. Before the fire door could be closed, the woodwork of the cab took fire and forced the engineer and fireman to jump to save themselves from being roasted alive. Fortunately the engineer shut off steam and applied the brake before quitting the engine, so the train soon stopped. The cab was completely destroyed, but no other damage was done to engine or train.

##### Running Around by the Stage Road.

Percy, Wy. T., can hardly be called a city. It cannot boast of an opera house, sewers, aldermen, daily papers, the electric light, or a dog pound. Outside of the section house and a small affair called a station there is no building to speak of, if one cares to speak the truth. Not so very long ago a man named Allen—Winfield Scott Allen—was stationed there as night operator, and one Sunday evening, after said Allen had been engaged in a game of draw with the section men instead of wooing the drowsy god whose name looks very much like "morphine" in print, he received a message from the dispatcher's office in Laramie, telling him to "hold No. 7" for orders. He to his novel. The arduous labors of the day, however, had told upon the frail constitution of Winfield, and just as he reached that point of the volume in which Gwendoline had consented to bid defiance to her stern and unyielding parents, and elope with her own and ownest Gerald McCloskey, the tired operator dropped off to sleep, showing a lack of sympathy for the heroine that could only be excused on the plea of extreme fatigue. Meanwhile his red lamp without had gone out. It was but a weak and sickly light at its best, and the poor thing probably felt so bad at being hung out in the cold alone by itself that it concluded that life was not worth the living—at any rate it creaked, and as trains do not stop at Percy unless signaled, the reader can get ready for a terrible collision, with the accompanying crash of engines, noise of escaping steam, the shrieks of the wounded, etc.

No. 7 came thundering along—a long train of loaded freight cars with a half dozen emigrant coaches in the rear, filled with men, women and children, en route for the Golden Gate. Engineer Mathison, as he neared the station, glanced inquiringly at the signal post in quest of the red light which he half expected to see there; but all was dark. The long train swept by and disappeared in the black night. Allen

still slept; the thunder of the passing cars had not broken, in the slightest degree, his slumbers, or the regularity of his snores. \* \* \*

For the last hour the chair on which Allen sits has been throwing out distress signals. The sleeper had tilted it back until his whole weight rests on the rear limbs, which, after sundry squeaks and groans, gave way. Allen gives way at the same time. The floor, on which he alights, doesn't. As the overworked brass pounder and four-ace manipulator gathers himself up from the floor and gazes ruefully at the ruins of the only chair there is in the building, he becomes conscious of the fact that the instrument on the table is sounding his "call" with startling rapidity. He grasps the keys and replies "I."

"Where is No. 7?"

"Hasn't arrived yet," replied Allen.

"Are you sure?"

"Yes; don't think it could get by without my hearing it, do you?"

"Have you been asleep?"

"No."

"Got a red light out?"

"Yes."

"How does it happen, then, that the operator at Fort Steele reports the arrival of No. 7 at that place?"

Allen was paralyzed—partially. He rushed to the door and found no red light—only a lantern.

He took in the whole situation in a second, and seizing the key, once more replied:

"—if I know. No. 7 hasn't passed here to-night. If she's at Steele she must have gone around by the overland stage road; it runs within a few miles of here, you know."

\* \* \*

There had been no accident. No. 10 had orders to meet No. 7 at St. Mary's, but had been delayed at Fort Steele by a hot box until after the arrival of that train.

Allen packed his grip, and every time a train from the east hove in sight, got ready to turn over the office to his successor, who, however, did not put in an appearance. One day, Chief Dispatcher Baxter came along. He took Allen to one side very confidentially, and he made up his mind that the official ax was about to fall. Baxter said:

"Don't go to sleep again while on duty, and for goodness' sake don't let any more trains go around over the old stage road. The alkali mud eats the paint off of the locomotive wheels, and the amount of coal required to pull up some of those hills is simply awful. The next time an engineer tries to give you the slip by taking that road, just take a horse and follow him up. You can catch him because the road-bed is so uneven that he can't make very good time. When you catch him, kill him, and I'll send a casket and the coroner up on the first train. The company will pay all the bills. Eh?"

Allen said he would.—*Laramie Boomerang.*

##### Rules for the Issue of Passes.

The Terre Haute & Indianapolis Co. (Vandalia Line), announces the following rules that will govern agents in issuing passes for the ensuing year:

"The following officers will be passed free of charge or without ticket or pass: General officers of the company, Master of Transportation and Superintendent of Motive Power. Master mechanics, superintendents of bridges and buildings, road masters and supervisors will be passed over their respective divisions.

"All passes must be signed by the President or General Superintendent. Heads of departments will be furnished with passes for their counter-signatures, which will be issued by them only to employees traveling on the business of the company.

"Passes to a limited extent will be issued to employees and their families when not traveling in the service of their company.

"Passes to employees of other railroad companies will be issued only by the President and General Superintendent upon receipt of a special letter from the President, General Manager, General Superintendent or other managing officer; such letter to bear the official stamp to attest its genuineness.

"Requests for passes by telegraph will not be honored nor will telegraphic passes be issued.

"Clergymen will not be carried upon half-fare tickets unless they are accompanied by clergymen's half-fare permits issued by the President.

"Passes must in all cases be filled out in ink. Conductors will not honor any pass upon which an alteration has been made. None but monthly, quarterly, or annual passes will be good for more than one trip, except in case of trip passes having an indorsement allowing the holder to lay over at stations."

##### Buried in the Snow.

An incident of the storm on the railroad is reported occurring on the old Gaines Branch of the Buffalo, New York & Philadelphia night before last. Conductor King, with his train, was blocked in the snow above Nunda. He determined to go back to that place on foot for help, and started out. When he had been gone about three hours his associates on the train became alarmed for his safety, and a number of them started out in search of him. After a walk of a mile the feeble glimmer of a light was seen in a field some distance from the track. There the men found a hand lamp half buried in the snow, but nothing could be seen of King. The conclusion arrived at was that he must be somewhere in the vicinity, as the lamp found belonged to him. They went at work throwing up the snow in the vicinity with shovels, and in a few minutes uncovered the unfortunate man. There was nearly two feet over him. He was nearly dead and in an unconscious condition. As soon as revived he was removed to Nunda and received proper attention. He is all right again, but his escape from death was a narrow one.—*Rochester (N. Y.) Post-Express, Jan. 11.*

##### A Narrow Escape.

A few days ago, as a Fall Brook freight train was on its way from Geneva to Lyons, N. Y., one of the brakemen fell headlong between two box cars, which were coupled with the old style link arrangement. In falling he was knocked senseless, but his arm became fast in the coupling and his body fell sideways across the arm, his feet and legs dragging on the ground under the car. Another brakeman who saw him fall and thought he might have caught him to the rescue. As soon as he saw the dangerous position of the other, he climbed down the end of the car, and succeeded in extricating and carrying the senseless body to the top of the train. Had he lost his presence of mind and signaled to the engineer to stop the train before he went down between the cars, the slacking of the motion would have released the arm and the senseless man would have dropped to the track only to be horribly mutilated before his inevitable death.

##### A Terrible Accident.

On the evening of Jan. 9 Brinton Station, on the Pennsylvania Railroad, near Pittsburgh, was the scene of a terrible accident, which resulted in the instant killing of two men and the serious wounding of five others, one of whom has since died. All day a large force of men had been employed on the Pittsburgh Division of the Pennsylvania road clean-



ing the snow from the tracks. At a cut just east of Brinton, 15 or 20 men were engaged at about 7 o'clock in the evening, when an accommodation train rounded the bend at Brinton, and before all the men could get out of the cut they were run down. The train was stopped as quickly as possible and backed to the scene of the accident, where a terrible sight met the gaze of the passengers and the trainmen. The dead and dying were scattered along the track for 50 yards. The bodies of two men were found badly mangled and life already extinct. Five others were badly injured, one of whom afterward died in the hospital.

The men crawled out of the snow in all directions, and it was at first thought that the bodies of others might be discovered, but no more were found.

The accident was caused by the failure of the men to station a lookout to warn them of the approach of the train, and the darkness and noise of escaping steam from locomotives standing near by made it impossible to see or hear the train coming.

#### A Curious Accident.

Conductor J. C. Hains of the Buda & Rushville Branch relates one of the most peculiar railroad accidents on record. Recently while running freight at rate of 10 miles per hour a flat car near the centre of his train of 12 cars jumped the track and started across the country, clearing the track entirely, allowing the rear cars to pass on without a jolt or a jar. Neither conductor nor brakeman knew they had met with an accident until they saw the ditched car as the caboose was passing it.—*Burlington (Ia.) Railroad Reporter*.

#### A Brave Engineer.

A modest man, but nevertheless a brave man, is A. M. Machim, an engineer on the Arkansas Valley route. He performed a deed on Wednesday morning which he speaks jokingly about and as if it was a matter of course, but which had first-class heroism in it. He brought in the "Cannon Ball" train yesterday from Pine Bluff, and the particulars of the occurrence were obtained from him.

He was in the cab of his engine on Wednesday last, taking the southbound passenger train down to Pine Bluff. About a mile north of Winchester, as he sat looking down the track, he saw some object lying directly across it. The train was running fully 15 miles an hour, and was not far enough away from the object to stop before it would be hit. "I didn't know," said Machim, "whether it was a hog or a man, but concluded to run out in front and try to throw it off. We were making 15 miles an hour, and I knew we would hit it pretty hard. I ran along the railing and got right on the cowcatcher. We were nearly to the obstruction, and I saw it was a man. I don't know exactly how it happened, but, you know, I was engineer on that train under which a poor devil threw himself a couple of days ago. I didn't exactly feel like killing a man every day, and quick as a flash I thought I'd try to help him out. It takes a good deal more time to tell it than it took to do it. Anyhow, I got as far down on the cowcatcher as I could, and waited for us to reach the fellow. He lay there like a log, and I didn't know whether he was dead or alive. But I just gave him the benefit of the doubt. It isn't exactly an easy thing to jump from a train going 15 miles an hour, but I had it to do. We bowled along until we got almost on top of him, and then I jumped forward, and almost with the same motion grabbed him by the coat-collar, and, with a mighty heave, rolled us both down the bank. It seems easy telling it, but it was just about as tough a place as ever I was in. The train passed on by, and, anyhow, the fellow wasn't killed."

"What was the matter with the man?"  
"Drunk."  
"What was his name?"  
"I didn't ask him."  
"What did you do with him?"  
"Let him lie there. He was dead drunk. Like a piece of wood. Didn't know anything. The fireman slowed up the train and I got aboard again."  
"Didn't your jump hurt you?"  
"Oh, a few bruises. But that's not nothing.—*Little Rock (Ark.) Gazette*.

#### Must be Run on Time.

One of the officials of a narrow-gauge road running out of Cincinnati gets his supply of buttermilk and poultry from a farmer living within about a mile of the line of the road. A passenger who was on the fast express a few days ago says that the train unexpectedly came to a stop in a piece of woods. The passengers, after the train had been standing still for some time, began to get off and make numerous inquiries as to the cause of the delay. The engineer was sitting in the cab quietly smoking his pipe as though in no hurry to "let her go." The conductor was found complacently taking a snooze in the rear coach. All the train men were whiling away the time in one way or another. Repeated inquiries finally brought out the fact that the brakeman had gone to the aforementioned farmer's to obtain the official's weekly supply of butter, eggs, poultry, etc. In about an hour he appeared heavily laden with numerous farm products. The engineer put aside his pipe, the whistle shrieked three or four times, the conductor awoke, jumped off the train, yelled frantically "All aboard," and said to a man with one leg who had got off the train to stretch it, and who, owing to his crippled condition, was rather slow in his movements, "Hurry up, man, or I shall have to pull out and leave you. This is an express train, and must be run on time."

#### He Didn't Flag the Train.

A few engineers and firemen were sitting around a coil of steam pipe in the round-house telling their yarns. Among them was a pale young man who had lost his health in a dry goods store and had just engaged as an extra fireman.

"I never was so mad," said big Bill Dempsey, "as I was when I licked Jim Ransom fur not flaggin' me."  
"When was that?" asked one of the firemen.  
"Let's see," said Bill, thoughtfully. "That was in '79—the year they put in the Clarion side-track."  
"For what offence did you punish him?" asked the pale young man.

"Hey?"  
"What did you whip him for?"  
"Waal," said Bill, "the counfoundid cjiott stopped down in the Kewanee holler, and never sent no man back to flag me. I was a comin' down the hill hellity-split when I seen his way-car. I had the old '70' with twenty-four cars, an' I hadn't no idee I could stop 'er, but I flung 'er over an' give 'er the plug fur all she was worth. I tore her old fire all out, at I got her by the neck all the same. She stopped within three feet o' Jim Ransom's way-car. Thunder an' sour milk, but I was mad! Jim was a standin' there, as rattled as a woman on a crossin', an' I says, 'You infernal cjiott, why didn't you send nobody back to flag me?' By gosh, Bill, says 'e, 'I'll be darned if I didn't furtit it.' 'Oh, you did, eh?' says an' I jumped down out o' that gangway and give him the ernalest wallopin' he ever got."

"Why did you not report him to the superintendent and have him removed for such gross carelessness?" asked the pale young man.

"Say, look a-here, young feller, I'll give you a dead

straight pointer," replied Bill. "If you're a-comin on this road with them sort o' ideas, the quicker you don't come the better fur you. If it's good health you want, you jest rent out them air notions to some feller with kid gloves. Yes, I'd look pretty, I would, a-goin' an' reportin' a man that's got a family to take care o', an' have 'im throwed out of a job in the dead o' winter. Young feller, them ideas may do fur counter-jumpers, but they hain't good fur nothin' to railroad with."—*Chicago News*.

#### The Pay-rolls of a Great Railroad.

The pay-rolls of the Chicago, Burlington & Quincy mechanical department for December, 1883, were as follows:

	No. men.	Amount.
General Office, Aurora .....	23	\$1,741
Galesburg Division .....	871	42,490
St. Louis .....	349	16,779
East Iowa .....	1,153	53,492
West .....	744	36,337
Chicago .....	1,488	72,655
Total .....	4,628	\$223,494

The aggregate of pay-rolls in the mechanical department of the road for the year 1883 was \$2,559,093. The smallest number of men employed in the various shops was 4,087, in January, and the largest number, 4,628, was last month. Of the above amount \$814,504 was paid to employes in the Aurora shops. The clerks employed in the general office of the mechanical department in this city received during the year \$21,057 in the shape of wages.—*Aurora (Ill.) Beacon*.

#### RAILROAD LAW.

##### Passenger Without Ticket—Negligence.

In the case of Storrs against the Pennsylvania Co., the Indiana Supreme Court lately reversed the decision of the lower court, holding as follows:

Appellant, a minor, alleged in his complaint that while attempting to board a passenger train of apples, then standing still, the train was suddenly jerked and started, throwing the plaintiff under the wheels, etc. Proper allegations are made of the negligence of appellee's servants, and that the plaintiff was without fault. It was also alleged that plaintiff had tried to obtain a ticket, but was unable to do so, because the company's office was closed. Answer, that there was a platform at defendant's depot for the use of passengers in getting on and off trains, and plaintiff attempted to board the train at a point 100 yards from the platform, and that those in charge of the train had no notice that plaintiff would attempt to board the train at that place. This answer does not allege facts from which, as a matter of law, contributing negligence on plaintiff's part must be inferred. Negligence is usually a mixed question of law and fact; a fact to be found by the jury under the instructions of the Court. The Court may not declare an act to be negligence, unless it is such that all reasonable men would be likely to draw an inference of negligence from it. It is not alleged that the train stopped at the platform, or that the company was not in the habit of receiving and discharging passengers where appellant attempted to board, as well as at the platform. The failure to obtain a ticket did not prevent appellant from becoming a passenger. The answer is fatally defective, in that it does not charge any carelessness on the part of appellant, or that his act in boarding the train where he did in any way contributed to his injury.

##### Right to Recover Tickets Sold Below Rates by Mistake.

The case of Ellis vs. Shelton et al. was decided yesterday in the Superior Court in favor of the complainant. As the case was one involving some vital principles of law and equity, a brief history of it will be of interest.

It appears that L. J. Ellis, as compiler of the "rate sheet of through passenger fares from Atlanta," had made a mistake of \$10 in the rate to Rogers, Arkansas, as quoted in the sheet for the month of April, 1882; that certain ticket brokers, Shelton & Stokes, of Atlanta, sent a second and third party on the night of April 5, 1882, to the ticket office of the Western & Atlantic Railroad, which office was governed as to the price of tickets by rates quoted in the above-mentioned rate sheet, and purchased 65 tickets to Rogers, Ark., at the rate quoted in the rate sheet, namely, \$21.25 each.

The compiler, realizing his responsibility for the error, approached the brokers in a day or two with an offer of \$100 cash in hand, if they would give up the tickets. This the brokers refused to do.

The compiler then entered suit against Shelton, Stokes, & Garland for the recovery of the tickets on the ground that the tickets were purchased at a mistaken rate; that the defendants knew of the mistake at the time of the purchase, and acted in a fraudulent manner in purchasing the tickets so as to throw the agent off his guard. The complainant filed a bill praying that Shelton, Stokes & Garland be enjoined from disposing of the tickets. The Western & Atlantic Railroad was made a party to the bill. The injunction was granted. The defendants contested the right to the issuance of the injunction, and the case was carried to the Supreme Court, which sustained the injunction, and a receiver was appointed to take charge of the tickets in dispute.

The suit for the recovery of the tickets was finally tried before a jury in the Superior Court, Judge Hammond on the bench.

The defendants claimed in their answer that the transaction was a legitimate one; that they did not know of the mistake at the time of the purchase, and that they did not now know it was a mistake; that the nature of their business required sometimes that they purchase tickets in a quiet manner so that other interested parties might know nothing of it; that they did not act in a fraudulent manner, that they acted in the utmost good faith and without wrong intent, that the mistake was due to the gross negligence of the complainants, and they ought not to recover.

It appeared from the evidence that the brokers had gotten two persons, strangers to the ticket agents, to purchase the tickets; that one of them approached the ticket agent a few minutes before the midnight train of the Western & Atlantic Railroad pulled out, representing that he had labored for Rogers, Ark., whom he wished to get off that night, and bought 10 tickets to Rogers, Arkansas, paying therefor \$31.25 each, the rate quoted in rate sheet; that the ticket seller was governed by the rate quoted in the sheet, but that the purchaser had voluntarily stated to the ticket seller that \$21.25 was the correct rate, stating that a certain agent had so quoted it to him that day. It also appeared that the next train left at or about 5 a. m., and a different ticket seller came on duty—one who had recently come into the service and who had but slight knowledge of the rate and ticket business; that he was approached at separate times by the two deputies, strangers to him, of Shelton & Stokes, one of them giving as his name what afterward proved not to be his name, representing that they had labored and emigrants going to Rogers, Ark., stating that some of them were at Cartersville, and discussing with the agent the best plan of ticketing them from Cartersville, bought, one of them 33 tickets to Rogers, and the other 22. It also appeared that one of the defendants

had admitted to the compiler, and boasted of the fact that he knew there was a mistake in the rate to Rogers, Ark.

The case was argued half a day, and the jury remained out 18 hours. The verdict required the return of the tickets in controversy to the complainant, thus placing all the parties to the suit precisely where they stood before the tickets were purchased on the night of April 5, 1882.

Judge W. F. Wright represented complainant in the injunction case, with Judge George Hillyer as associate counsel in the suit for the recovery of the tickets. Messrs. Mynatt & Howell represented defendants.

It is understood that the defendants' counsel will move for a new trial.—*Atlanta (Ga.) Constitution*.

#### ANNUAL REPORTS.

The following is an index to the annual reports of railroad companies which have been reviewed in previous numbers of the current volume of the *Railroad Gazette*:

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#### Cincinnati, Washington & Baltimore.

The Marietta & Cincinnati, to which this company is a successor, has made no report for several years. The following statement has just been published, giving the earnings of the road for the year ending June 30 last. For this year the report for the first half—July 1 to Dec. 31, 1882, is for the Marietta & Cincinnati road under the Receiver, and for the second half—Jan. 1 to June 30, 1883—for the road under the Cincinnati, Washington & Baltimore Co.

The earnings for the year were as follows:

	Receiver—6 mos.	New Co.—6 mos.	Total—year.
Earnings .....	\$1,101,119	\$919,837	\$2,020,956
Expenses .....	872,116	741,034	1,613,150
Net earnings .....	\$229,003	\$178,803	\$407,806
Rents paid .....	118,987	31,473	150,460
Net income .....	\$110,016	\$147,330	\$257,346

The earnings for the entire year were \$7,116 gross and \$1,436 net per mile; the expenses were 79.82 per cent. of gross earnings. The reduction in rentals for the second six months is due to the consolidation of the lessee companies with the new corporation.

#### West Virginia Central & Pittsburgh.

This company owns a road from Piedmont, W. Va., to Fairfax Stone, 47 miles, with a branch to Elk Garden, Md., 1½ miles. It also owns a large coal property in the upper end of the Cumberland Region, and is a miner and shipper of coal. The following statements are for the year ending Sept. 30, the first full year of the operation of the road during which about 20 miles were worked.

The income statement for the year is as follows:

Gross earnings of road (\$4,577 per mile) .....	\$91,534
Expenses (38.54 per cent) .....	35,279
Net earnings (\$2,813 per mile) .....	\$56,255
Received for coal sold, at Piedmont .....	\$268,374
Cost of mining and hauling coal .....	227,336
	41,038
Total net receipts .....	\$97,293

The chief business of the road is in hauling coal from the company's mines and carrying supplies to them.

The road is in good running order to Elkins, 82 miles from Piedmont; the track laid to Fairfax Stone, 47 miles from Piedmont; an extension of 5½ miles from that point to Davis, W. Va., at the junction of the Beaver and Blackwater rivers, has been surveyed and located; some work has already been done on this extension, and it will be pushed as soon as the weather will permit. The road has been finished and equipped to its present terminus for less than \$20,000 per mile, and the money to complete the 5½ miles from the summit to Davis is in hand.

#### Troy & Greenfield.

This road, which includes the Hoosac Tunnel, and is owned by the state of Massachusetts, extends from Greenfield, Mass., to North Adams, 44 miles. The income is derived from tolls paid by the roads which run trains over it, the companies now using it being the Fitchburg and the New Haven & Northampton. The report of the Manager for the year ending Sept. 30 last gives the figures below.

There were 32.7 miles of second track and 21.6 miles of sidings at the close of the year, an increase during the year of 8.7 miles of second track and a decrease of 5.4 miles of sidings, a number of the long sidings previously used for passing trains having been so laid as to be used as part of the second track.

The traffic passing over the road was as follows:

	1882-83.	1881-82.	Increase.	P. c.
Train-miles .....	644,510	599,601	44,910	7.5
Passengers carried .....	282,179	228,150	54,029	23.7
Passenger-miles .....	5,407,264	5,221,490	185,774	3.6
Tons freight carried .....	1,337,674	1,653,509	284,165	27.0
Ton-miles .....	49,947,493	39,641,889	10,305,604	26.0

The average train-load last year was 28 passengers or 193 tons of freight. Through business furnished 54½ per cent. of the passenger-miles and 89 per cent. of the ton-miles. Of the train-miles 193,800 were of passenger trains, 258,464 of freight trains and 192,363 switching and service miles; the latter being made by the engines owned by the state.

The receipts and expenses for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Total income .....	\$310,887	\$236,149	\$74,738	31.7
Current expenses .....	168,514	171,064	D. 2,550	1.5
Net income .....	\$142,373	\$65,085	\$77,288	118.9
Cost of new construction .....	285,615	275,360	I. 10,255	3.7
Excess of payments .....	\$143,242	\$210,275	D. \$67,033	31.9

The income is derived from tolls; the expenses are for maintenance of way, management and switching in the North Adams yard. The income last year included a payment of \$17,000 for switching charges accruing in former years.

The tolls will have to be fixed again this year by the Railroad Commissioners acting as arbitrators. The report of the State Auditor shows that the total payments from the State treasury on account of this road last year, including interest on loans made for its construction, were \$1,215,789; the receipts \$391,649, leaving a deficit of \$824,140. The total cost of the road to the state up to Dec. 31, 1883, was \$23,122,193. This includes interest paid on loans in excess of the receipts of the road.

#### Cleveland & Pittsburgh.

The following statements of the financial operations of this company were presented at the annual meeting in Cleveland last week. The road is leased to the Pennsylvania Com-



pany, and its earnings and traffic are given in the reports of that company.

The operations of the sinking funds for the year ending Nov. 30 were as follows:

	Consol. mort.	Construc. mort.
Balance, Dec. 1, 1882	\$124,936	\$38,942
Yearly contribution	71,396	26,525
Interest, etc.	18,425	
Total	\$214,777	\$55,467
Retirement of bonds	178,223	34,000
Balance, Nov. 30, 1883	\$36,554	\$21,467

There were 140 consolidated bonds and 34 construction and equipment bonds thus retired during the year.

The income statement is as follows:

Rental received from lessee	\$1,242,606
Interest received	1,053
Total	\$1,243,659
Interest on bonds	\$347,730
Contributions to sinking funds	97,921
Maintenance of organization	1,412
Dividends, 7 per cent	786,902
Total	1,242,955

Balance, surplus for the year \$704

The lessee complied punctually, as usual, with all the requirements of the lease, and the usual payments were promptly made.

#### Lehigh Valley.

The following figures for the fiscal year of this company ending Nov. 30 last are obtained from the statements presented at the recent annual meeting, in advance of the publication of the full report.

The stock and bonds are as follows:

Preferred stock	\$106,300
Common stock	27,496,850
First-mortgage bonds	\$5,000,000
Second-mortgage bonds	6,000,000
Consolidated bonds	13,854,000
Total	24,854,000

Total stock and bonds \$52,457,450

The consolidated bonds include \$3,854,000 sterling, \$553,000 annuity, \$1,949,000 coupon and \$7,498,000 registered bonds. There is no floating debt.

The total receipts, including interest on investments, etc., and the disposition of net earnings were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Total income	\$11,310,171	\$11,239,312	I.	\$70,859 0.6
Expenses of road	6,175,656	5,833,677	I.	341,979 5.8
Net earnings	\$5,134,515	\$5,405,635	D.	\$271,120 5.0
Net income, as above				\$5,134,515
Interest, including guaranteed bonds				\$2,031,674
Dividends, 8 per cent				\$2,210,378
Interest, taxes, loss on canal, etc.				\$21,921
Estimated depreciations				\$47,944
Total				5,011,917

Balance to profit and loss \$122,598

The operating expenses of the year have been increased by charging to those accounts a number of extraordinary expenditures which, without apparently increasing the earning power of the road, will affect its future economical maintenance.

The coal tonnage for the year was as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Anthracite	6,527,912	6,257,159	I.	270,753 4.3
Bituminous	64,734	78,982	D.	14,248 18.0
Total	6,592,646	6,336,141	I.	256,505 4.0

The report mentions the consummation of the agreement for the purchase of \$900,000 of the first-mortgage bonds of the Southern Central Railroad Co., to enable it to make further improvements, and that the earnings of the Geneva, Ithaca & Sayre Railroad were last year for the first time in its history sufficient to meet the expenses. The enlargement of the service of steam vessels in the lake service is referred to as necessary, and it is stated that extensive improvements are being made by the company at Amboy. Referring to the new issue of stock the report says: "Since the last issue of stock made at par among the stockholders in May, 1875, both the mileage of the company and its equipment have been increased more than 50 per cent., and large investments have been made, of great importance to our business, in Buffalo and at other places as before referred to. To represent the capital so invested and to meet other intended extensions, the board has directed the creation of an amount of common stock equal to 20 per cent. of the whole stock now outstanding to be issued *pro rata* to the stockholders at par, payable in five installments at intervals of three months, interest at the rate of 5 per cent. to be allowed on payments, and the stock to be entitled to dividends declared after January, 1885."

#### Pittsburgh & Lake Erie.

This company owns a line from Pittsburgh, Pa., to Youngstown, O., 68 miles, with a branch to New Castle, Pa., 2.35 miles, making 70.35 miles in all. The following statements are from the report for the year ending Dec. 31, as presented at the recent annual meeting.

The general account is as follows:

Stock	\$2,193,053.69
Funded debt	2,000,000.00
Dividend scrip	615,000.00
Balance of accounts	25,910.30
Temporary loan	290,419.50
Balance due on equipment	30,014.54
Undivided surplus	750,517.47
Total	\$5,924,914.81

Construction	\$3,910,756.39
Right of way	485,356.62
Real estate	395,590.65
Equipment	1,116,318.10
Total cost of road	\$5,878,021.85
Cash on hand	46,892.96
Total	5,924,914.81

The funded debt consists of first mortgage 6 per cent. bonds. The dividend scrip is redeemable at the option of the company; it was issued for dividends of 10 per cent. each, declared for 1880, 1881 and 1882, to represent earnings used in construction. Another dividend of 10 per cent. will be made on the year just closed.

The earnings for the year were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Freight	\$1,152,189	\$1,023,332	I.	\$128,857 12.6
Passengers	223,538	217,737	I.	5,801 2.6
Mail, etc.	27,037	24,679	I.	2,358 9.5
Total	\$1,402,764	\$1,265,748	I.	\$137,016 10.8
Expenses	819,730	757,044	I.	62,716 8.3
Net earnings	\$583,034	\$508,704	I.	\$74,330 14.6
Gross earn. per mile	19.940	17.662	I.	2.278 12.8
Net " "	8.307	7.231	I.	1.076 14.6
Per cent. of exps.	58.4	59.8	D.	1.4

The gross earnings show a large increase, which was, how-

ever, almost equaled in proportion by the increase in expenses.

The income account was as follows:

Net earnings, as above	\$583,034.18
Interest on bonds	\$120,000.00
Interest on scrip and current accounts	55,853.49
Total	175,853.49

Balance, surplus for the year \$407,150.69

The Manager's report says: "The working expenses, which include fuel and the use and maintenance of engines and cars employed in second track service, and other expenditures which might have been charged to construction, were 58.4 per cent. of the gross earnings, a decrease of 1.4 per cent. from last year.

"The earnings show a surplus over expenses of \$407,150.69 after taking care of the interest upon the entire bonded debt, scrip certificates and all interest charges. The equipment notes due the Beaver Falls Car Works in 1883, amounting to \$84,489, have been paid during the year. The payments on this account for 1884 will be but \$31,588, and for 1885 \$18,427, closing out all the payments on account of equipment.

"I stated in my last report that 'it had been my endeavor to provide for all interest charges, real estate, new equipments, additional right of way, sidings, second track, new structures, etc., from current revenues, but the funds thus provided were inadequate for the immediate and pressing additional facilities needed at Pittsburgh and for second track.' But the large addition to your property during this year has been made without any increase of floating indebtedness.

"Largely increased facilities are needed to properly accommodate the business at Pittsburgh."

The company has just concluded a lease of the new Pittsburgh, McKeesport & Youghiogheny road, extending from Pittsburgh into the Connelville coke region, 59 miles.

#### Fitchburg.

This company worked the following lines during the year ending Sept. 30, 1883:

	Miles.
Main Line, Boston to Fitchburg, double track	50.88
Watertown Branch, Junction to Waltham	6.60
Lancaster & Sterling Branch, South Acton to Marlboro	12.42
Peterboro & Shirley Branch, Ayer Junction, Mass., to Mason Village, N. H.	23.62
Total owned	93.32

	Miles.
Vermont & Massachusetts, leased:	
Main Line, Fitchburg to Greenfield	50.00
Branch, Greenfield to Turner's Falls	2.80
Total owned and leased	152.12

The company also runs trains over the Troy & Greenfield Railroad, 37 miles, paying tolls to the state of Massachusetts for its use; this makes the main line 143.68 miles long, from Boston to North Adams. On the road owned there are 50.68 miles of second track and 63.50 miles of siding; on the road leased 44 miles second track and 27.39 miles of sidings. The use of 10.5 miles of track, from Fitchburg to South Ashburnham, is leased to the Cheshire Railroad. The total mileage of track on the lines worked is 337.69 miles.

The equipment consists of 98 locomotives and 102 tenders; 96 passenger and 31 mail and baggage cars; 2,242 box, 789 platform and 29 caboose cars; 268 gravel and other cars and 9 snow-plows. Additions during the year were 2 tenders; 3 passenger and 2 baggage cars; 1 box, 3 flat, 1 caboose and 26 gravel and other cars.

The general balance sheet is as follows, condensed:

Stock	\$4,950,000.00
Funded debt	3,500,000.00
Notes payable	510,500.00
Sinking fund	108,234.79
Accounts and balances	160,352.48
Profit and loss	317,323.16
Total	\$9,544,410.43

Road and improvements \$7,488,822.31

Vermont & Mass. Co.	660,352.61
Hoosac Tunnel Dock & Elevator Co.	374,000.00
Materials	409,571.59
Accounts and balances	275,890.79
Cash and cash funds	335,773.13
Total	9,544,410.43

Changes during the year were an increase of \$500,000 in bonded debt and a decrease of \$575,000 in bills payable. The bonds are all plain bonds, not secured by mortgage.

The traffic for the year was as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Train miles	1882-83.	1881-82.		
Passenger	874,115	825,091	I.	49,024 5.9
Freight	970,023	841,842	I.	128,181 15.2
Switching and service	463,087	422,873	I.	40,214 9.5

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Total	2,307,225	2,089,806	I.	217,419 10.4
Passengers carried	3,158,643	2,959,423	I.	199,220 6.7
Passenger-miles	50,067,619	47,028,311	I.	2,979,308 6.3
Tons freight carried	2,021,122	1,822,369	I.	208,860 11.5

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Av. train load:				
Passengers, No.	57	58	D.	1 1.7
Per train mile				
Earnings	\$1.28	\$1.25	I.	\$0.03 2.4
Cost, including interest	1.14	1.17	D.	0.03 2.6
Net income	\$0.14	\$0.08	I.	\$0.06 75.0

Of the passenger-miles 24½ per cent. were of passengers to and from other roads.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Freight	\$1,835,421	\$1,521,576	I.	\$313,845 20.6
Passengers	897,222	816,772	I.	80,450 9.8
Mail and express	89,763	78,216	I.	11,547 14.8
Rents, etc.	143,271	197,169	D.	53,898 27.4
Total	\$2,965,677	\$2,613,730	I.	\$351,947 13.5
Expenses	2,167,941	2,007,886	I.	160,055 9.0
Net earnings	\$777,736	\$605,844	I.	\$171,892 28.4
Gross earn. per mile	19.496	17.182	I.	2.314 13.5
Net " "	5.113	3.933	I.	1.180 28.4
Per cent. of exps.	73.78	76.82	D.	3.04

The earnings show a large increase, considerably in excess of the increase in expenses, leaving a large gain in net earnings.

The result of the year was as follows:

Net earnings as above	\$777,736.04
Rent of Vermont Mass. road	\$230,164.00
Interest on bonds	177,500.00
Other interest	51,225.48
Surplus for the year	\$318,846.56

From this surplus two dividends of 3 per cent., making 6 per cent. in all, were paid on the stock.

Expenditures on the road owned were \$81,022 for improvements and \$9,841 for real estate; on the leased line the payments during the year for improvements were \$350,253.

The directors' report is mainly a record of improvements along the line of railroad. The road-bed and track between Boston and Greenfield are in excellent condition, well bal-

lasted and laid with steel rails its entire length. Nearly 16 miles of additional double track have been opened for use during the year, making 88 miles of continuous double track from Boston to Orange, and 98 miles of double track on the main line between Boston and Greenfield. The grading for the second track west of Montague is so far advanced that it is expected the entire line will be in double track during 1884. At stations along the route 12½ miles of additional track have been laid. New bridges have been built, or old ones repaired, as follows: A bridge across the Charles River, one across the Nashua, one west of Royalston, one at Pequoig, two west of Orange, one west of Wendell, two west of Erving. A carpenter's shop has been built at Charles-town, passenger stations at Townsend and Royalston, and a flour-shed of 5,000 barrels capacity at East Deerfield.

The passengers carried over the Troy & Greenfield Railroad have increased from 122,255 in 1882 to 123,553 in 1883; and the tolls paid the commonwealth for passengers, expresses and mails have increased from \$47,868 in 1882 to \$50,491 in 1883. The freight over the same road has increased from 893,712 tons in 1882 to 1,068,534 tons in 1883; and the tolls paid therefor have increased from \$117,971.55 in 1882 to \$160,277 in 1883.

The total tolls paid the Commonwealth on freight and passenger business have increased from \$165,839 in 1882 to \$210,767 in 1883, an increase of \$44,928, or 27 per cent.

The report says: "The company has, as yet, received no return from its investment in the Hoosac Tunnel Dock & Elevator Co.; but it is hoped that its business will show such improvement that this company, as well as others who have invested in this enterprise, may realize a return in the near future."

"In pursuance of the vote of the stockholders at their last annual meeting, the directors have requested the Vermont & Massachusetts Railroad Co. to issue its bonds to the extent of \$1,000,000, for the purpose, in part, of retiring the outstanding mortgage bonds of said company, and, in part, of reimbursing this company for expenditures on the Vermont & Massachusetts Railroad; and the same have accordingly been issued at the rate of interest of 5 per cent. per annum."

The report concludes with a glowing tribute to the memory of the late President Stearns.

#### Petersburg.

This company owns a line from Petersburg, Va., to Weldon, N. C., 59 miles. Its report is for the year ending Sept. 30.

The equipment consists of 10 locomotives; 2 passenger, 1 postal and 2 express and baggage cars; 63 box, 4 stock, 53 flat and 3 caboose cars; 1 officers' car and 3 construction cars.

The general balance sheet, condensed, is as follows:

Preferred stock	\$323,500.00
Common stock	1,000,700.00
Bonds	1,838,000.00
Accounts and balances	41,803.62
Total	\$3,204,003.62

Road and equipment	\$3,073,246.68
Stocks and bonds	54,834.68
Supplies on hand	6,810.67
Accounts and balances	12,064.28
Cash	57,057.31
Total	\$3,204,003.62

The funded debt consists of \$375,000 old first and \$3,000 second-mortgage 8 per cent. bonds; \$580,000 Class A 5 per cent. bonds and \$900,000 Class B 6 per cent. bonds. During the year \$160,000 Class A bonds were sold; \$100,000 Class B bonds were redeemed and canceled; \$25,000 old first-mortgage bonds matured and were paid, and there was \$69,974 paid on the old interest debt, clearing it off altogether.

The traffic for the year was as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Train miles:				
Passenger	126,634	126,634		
Freight	45,105	45,105		
Service	15,510	15,510		

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Total	187,309	187,309		
Passengers carried	63,538	53,552	I.	10,006 18.5
Passenger miles	3,272,133	2,693,844	I.	578,289 21.3
Tons freight carried	111,446	108,593	I.	2,853 1.7
Ton-miles	6,014,501	5,536,005	I.	478,496 8.6

Av. train load:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passengers, No.	26	26		
Freight, tons	146	146		

The average rate per ton-mile was 5.39 cents last year on local and 1.99 cents on through freight.

The mileage of passenger-train cars for the year was 547,211; of freight cars, 974,784, and of material or service cars, 145,340 miles.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Freight	\$181,340	\$162,056	I.	\$19,284 11.5
Passage	191,069	86,565	I.	104,504 12.3
Mails, etc.	52,830	49,323	I.	3,507 7.3
Total	\$335,179	\$298,544	I.	\$36,635 12.3
Expenses	180,964	159,703	I.	21,261 13.3

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Net earnings	\$54,215	\$38,841	I.	\$15,374 39.4
Gross earn. per mile	5.691	5.000	I.	0.691 13.8
Net " "	910	658	I.	252 28.4
Per cent. of exps.	53.99	53.49	I.	0.50

There was a considerable increase in gross earnings and a very large one in net earnings last year.

The treasurer's cash account was as follows:

Cash on hand, Oct. 1, 1882	\$45,848.21
Receipts on current accounts	422,923.55
Receipts from sales of bonds	109,321.17
Total	\$578,092.93

Paid on current accounts \$274





Published Every Friday.

## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## THE LACKAWANNA AND ITS BUFFALO CONNECTIONS.

Mr. Fink's letter to Mr. Sloan, announcing that the railroads east of Buffalo would not be partners with the Lackawanna in its contracts for carrying freight at less than regular rates from New York to points west of Buffalo (for that is about what their action amounts to), says that the percentage of the business offered to the Lackawanna would yield about 50 per cent. more revenue than what the road has actually earned outside of the pool. It seems that while it had obtained on the average about one-sixth of the tonnage, so much of this was low-class freight that it would have yielded not more than 12 per cent. of the gross earnings, and as it was nearly all taken at less than regular rates, it probably actually yielded much less than that; and as the cost is about in proportion to tonnage, of course the proportion of net earnings was still smaller. The Lackawanna, we understand, demanded a percentage of all classes traffic about as large its percentage of tonnage had been, which was mostly of freight paying 40 and 50 cents, and little of that paying 60 and 75 cents per 100 lbs. We believe (but do not know) that the Lackawanna would have been granted percentages of each class of freight as great or nearly as great as it has secured by competition, at rates lower than the other roads have charged, though some of the other roads for part of the time have felt compelled to reduce their rates on low-class goods to meet those of the Lackawanna, though their reductions were not usually as great as the Lackawanna's.

Of course, if the Lackawanna's rates have been lower than those of the other roads, it has obtained a larger proportion of the traffic than it could have done had the rates been the same by all roads. On the other hand, a road could not be expected to secure at full rates as large a share of the traffic the first year it was open as it could eventually secure. Mr. Fink's award of a percentage yielding gross earnings equal to what the road would have made at full rates while cutting is, therefore, an offer of much more than the road has secured, evidently as a recognition of the fact that the road would be able to get, on equal terms, more hereafter than heretofore—assuming that by cutting rates for a year it has secured about that portion of the traffic which it would eventually be able to command.

The Lackawanna is justified in refusing this percentage if, by continuing to work outside, it can command greater profits in the long run. This very likely it might do if the other roads should continue to maintain their rates while it bid below them. But of course this could not long continue. The railroads

will submit to a certain loss of traffic so long as they think that it will not permanently deprive them of profits more than the new-comer will be eventually able to command—no longer. If the Lackawanna should be permitted to make rates for a year or so—for a much less time, in fact—20 per cent. lower than those charged by the other lines, it would inevitably soon have all the business. Therefore, the time comes when the reduction made by a new-comer in its efforts "to build up a business" result in a general reduction by all lines. It is safe to say that that point has been reached now, and that if the action of the lines west of Buffalo does not result in preventing the diversion of traffic to the Lackawanna beyond what the other lines believe it can command permanently at equal rates, the regular rates will be made as low as those which the Lackawanna charges, and that road will have to fight for its business just as if it had just entered the field. Not a single question will have been settled, but after successive reductions, until the business has become wholly profitless and all parties are disgusted, negotiations will have to begin at the beginning, or just at the point where matters stand now. And in a contest the Committee roads will have the advantage that they can make rates through to Chicago and St. Louis; the Lackawanna only to Buffalo. A reduction which would take off the whole or part of the rate earned by the lines between New York and Buffalo would still leave the New York-Chicago rate more than it was during the war of 1881—a woefully inadequate and shamefully low rate, it is true, but a possible one, as events have proved.

No one is anxious for a fight, however: quite the contrary. The trunk-lines are not doing any too well: some of them not well at all; and they will make great efforts and some sacrifices to prevent losses on the heavy through business westward, which can better afford to pay than almost any other traffic. The Lackawanna with its great coal traffic may feel more independent than the other roads, but we do not believe that any arrangement giving any of the lines more than it is on the whole and in the long run able to command on its merits can stand long. As we have said, no road is entitled to traffic in proportion to the harm it can do if it fights for the business, but only to that share of the profits which it can command under competition.

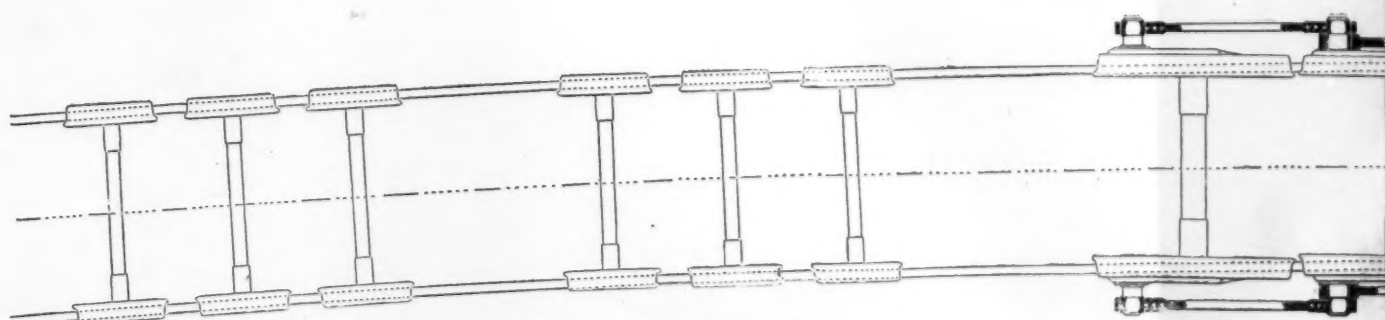
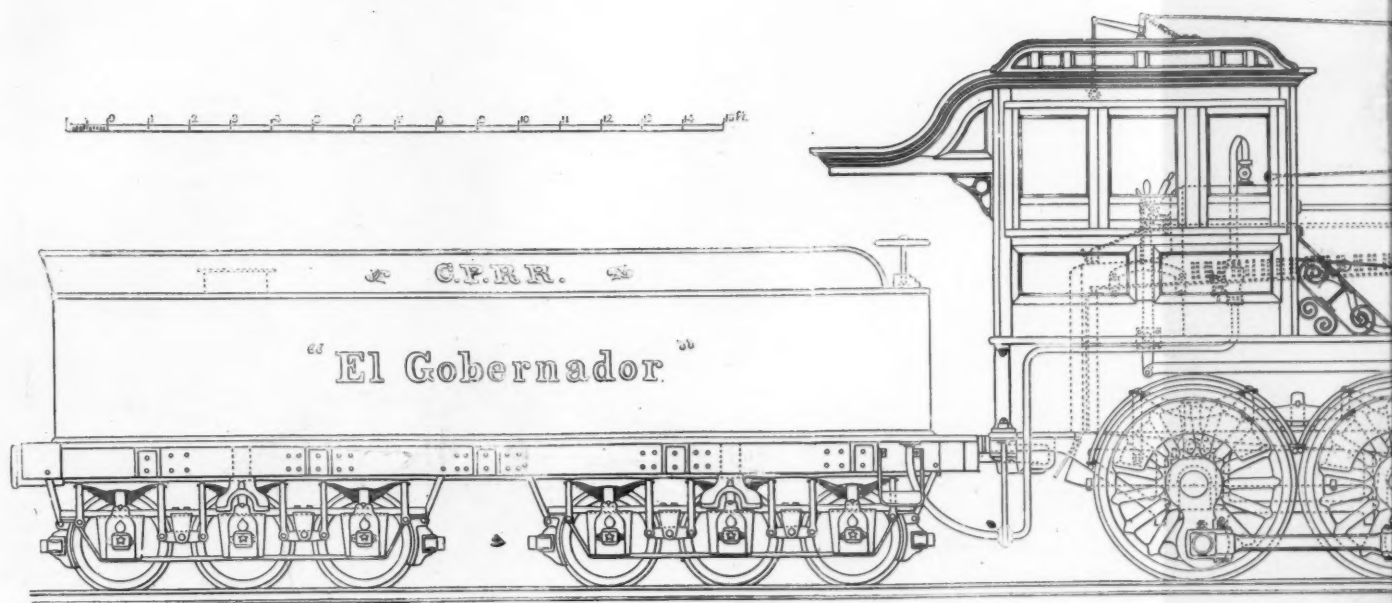
The action taken by the roads west of Buffalo in relation to the Delaware, Lackawanna & Western is not a refusal to exchange business with it, as some of the newspapers have said; nor do they charge local rates on freight consigned to them by the Lackawanna. They refuse to forward freight for it on through way-bills, which makes it necessary to rebill the freight at Buffalo, and they refuse to advance back charges, but they accept their proportion of the regular through rate west of Buffalo. The effect of this is to make the whole of the reduction in the rate fall upon the Lackawanna, and to embarrass it in collecting its share of the freight charge on shipments westward. The Lackawanna contracts are said to be at rates 20 per cent. less than the regular rates, so that it agrees to put first-class freight in Chicago for 60 instead of 75 cents per 100 lbs., and fourth class at 32 instead of 40. Now the road between Buffalo and Chicago gets about five-ninths of the whole rate, and if it were a party to the cut, five-ninths of the reduction would fall upon it. But since it refuses, it will collect five-ninths of the regular rate, or about 41½ cents on first class and 23 cents on fourth class. Thus the Lackawanna will receive about 18½ cents on first class and 10 cents on fourth-class freight for carrying from New York to Buffalo, instead of the regular rates of 33½ and 18 cents, and its reduction of 20 per cent. to Chicago is a reduction of 45 per cent. on its share of the rate. To any one outside of railroad business it will probably seem ridiculous that the roads west of Buffalo should ever be expected to share in a reduction of rates which they have not consented to and which is not made for their benefit; but it was so long the rule among the railroads, that the road shipping the freight made the rate through on all the connecting roads over which the freight passed, that many have come to look upon it as the natural condition of things. The Eastern road settled its troubles with its Eastern competitors by sacrificing the profits of its Western connections, and in return was liable to be used by these Western lines in the same way. This practice prevails still where there is not some regulation to the contrary, but it is a relic of barbarism which will probably soon disappear, except where two roads connect with each other exclusively and have almost identical interests in the traffic which they interchange.

The notice of the railroads west of Buffalo to the Lackawanna road that they would not be parties to its

contracts to carry from New York to points west of Buffalo at less than their regular rates, has been characterized as "boycotting" by some of the newspapers, though, to do them justice, they generally seem to approve the object aimed at, while regarding the means of questionable legality. But unless one railroad owes a connecting railroad duties which it does not owe individuals in the community, it is hard to see how the Lackawanna can require the Buffalo railroads to do what they say they will not do. They do not refuse to carry for the Lackawanna, but agree to accept any shipments it may give them, not only at rates as low as they accept from any Buffalo shipper, but at rates as low as they accept from any New York shipper, which are lower than their rates from Buffalo. For their mutual benefit they have made contracts with railroad companies east of Buffalo to accept them as agents in New York and to act as their agents at Buffalo and in the West, to advance the freight charges east of Buffalo, and do other work belonging to a forwarding agent as distinguished from a common carrier, the consideration on both sides being a certain definite proportion of a certain total through freight charge. This work they offer to do for all railroads east of Buffalo on the same terms. That is, the roads east and west of Buffalo have formed a partnership for the conduct of a certain business. Now comes the Lackawanna with a policy which must inevitably injure the value of this partnership business. Is there any shadow of justice in compelling the roads west of Buffalo to enter into a partnership with it on terms which are not the same as those on which it does business with its other partners, but much less favorable to the Western roads as well as harmful to their Eastern partners? If the Lackawanna can find a partner willing to act with it on the terms which it makes, all the other roads, east as well as west of Buffalo, must take the consequences. The roads east of Buffalo must meet its competition in any event, for it can make any rates it pleases to Buffalo and the places which it reaches between New York and Buffalo, and for the haul to Buffalo on shipments to points west of that city; though it will be very difficult for it to do such a business if it has to collect charges in advance as far as Buffalo, and there rebill the freight.

Of course the Lackawanna does not wish to have rates reduced, any more than any other road. Substantially, rates, even when established by an association of roads, are always the lowest that any road carrying the freight is willing to make them. By co-operation the railroads do not make rates higher than some of them wish them to be, but they make them alike to all and by all roads (if they succeed). What the Lackawanna wants is a rate higher on the other roads than on its own, so that it may "build up a business." It has most strenuously insisted from the time when it first began to take through freight that it wholly approved the trunk line combination and meant to become a party to it; but it felt it necessary to work outside for a time in order to ascertain how much traffic it could command, which means that it feared that it would not get so large a proportion of the traffic if it asked for a percentage before competing, as it would after it had made itself felt. It is not impossible that this was wise on its part; for while it is true that old roads can better afford to give a new competitor from the first all it could command by competition, than to have it go through the process of securing it for itself, it is always possible that they, even if reasonable, might underestimate the new road's ability to command traffic, and it is also possible that they may not be reasonable and would not give a fair proportion of the business until it had been taken, and the profits of their own business reduced by the new road's competition. The action to be taken by the managers of the new line would properly be governed to a considerable extent by their knowledge of the character and temper of the managers of the competing roads with which they have to deal, and of the machinery, if any, set up to adjust such matters—in this case the Trunk Line Commission. This was a question which the Lackawanna had to decide to the best of its discretion, and it decided that temporarily it was best for it to keep out of the combination, and to come in when it had an established business. Last December it announced that it was ready to join the other trunk lines and became a party to the combination, though we understand that it did not agree to submit its claims to arbitration, which seems to us essentially the heart of the combination, without which any adhesion is worthless. Just after joining the combination, and so agreeing to maintain regular rates and causing other lines that had begun to meet its reductions to maintain those rates, it is reported that it began to make contracts with shippers





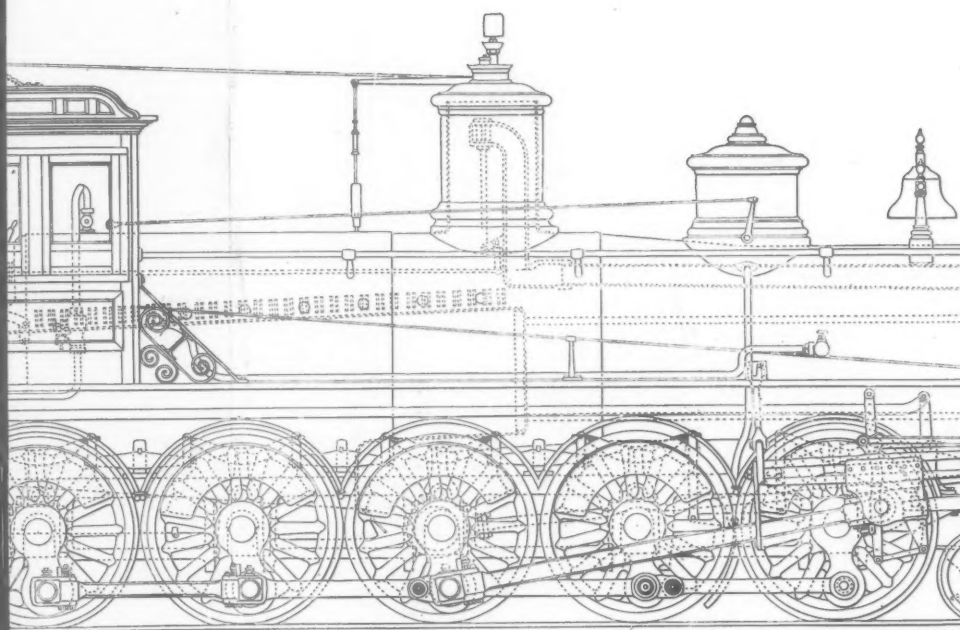
Plan showing Engine Wheels on 12° Curve.

"EL GOBERNADOR"

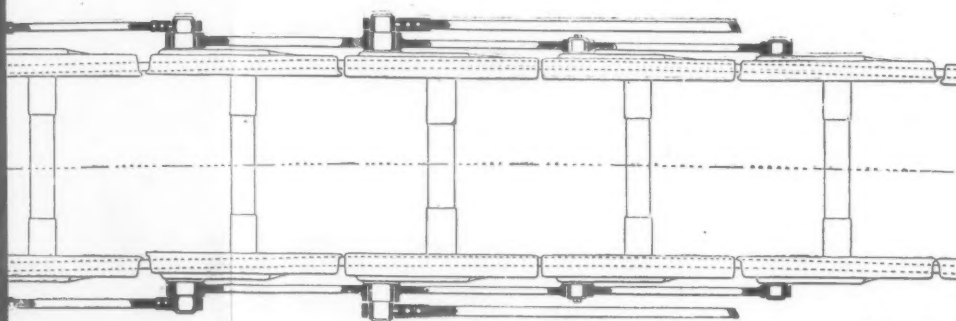
FOURTEEN-WHEEL LOCOMOTIVE FOR THE

Built at the Company's shops in Sacramento, MR. A.





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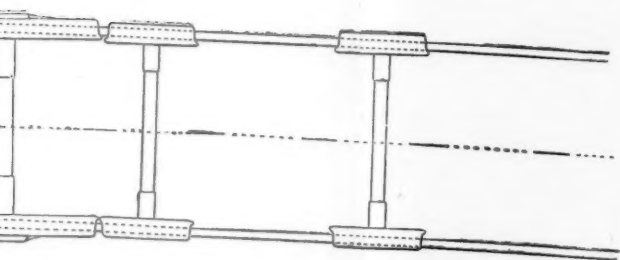
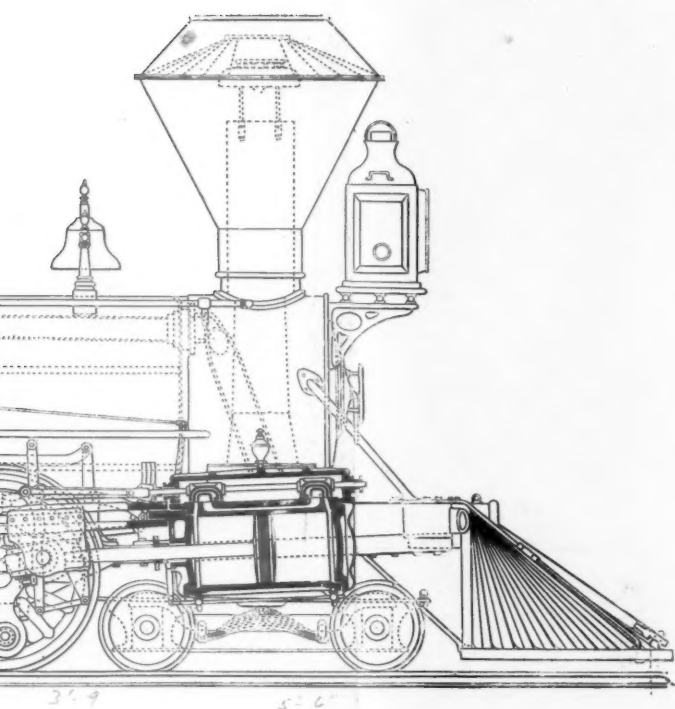
Rails spiked

"EL GOBERNADOR."

LOCOMOTIVE FOR THE CENTRAL PACIFIC RAILROAD.

in Sacramento, MR. A. J. STEVENS, General Master Mechanic.





Rails spiked to Gauge 4 ft 8 1/2 in.







to carry at a fifth less than the regular rates, many of the contracts being for six months or more, and that, favored by the abstention of the other lines, in a short time it had made about 4,500 such contracts! It now calls upon its Western connections, which had long ago announced that they would not be a party to such contracts, to help it in carrying them out.

#### WHERE GRAIN PRODUCTION IS INCREASING.

The Department of Agriculture has recently issued a preliminary estimate of the crops of 1883, which is interesting not only as indicating where traffic is likely to be heavy and where light this year, but also and more so as indicating where there is great and where little increase in agricultural production, and what progress has been made in developing the territory on the border which has only been made accessible to settlers within a comparatively recent period, as Kansas, Nebraska and Dakota, the last of which is much the newest and is the part of the country of whose marvelous growth we hear most nowadays.

We have heard much of the poor wheat crop of 1883. The Department's estimate is of a total crop of 420 million bushels, against 504 last year, a decrease of just one sixth. It appears that substantially the whole of this decrease is in the six western winter wheat states, and that there was a very considerable increase in production in the five spring wheat states. Below we give the figures for each state for five years:

	1879.	1880.	1881.	1882.	1883.
<b>Winter wheat:</b>					
Ohio.....	46,614,669	49,790,475	34,520,000	43,453,630	25,884,000
Michigan.....	33,534,543	33,155,805	21,220,000	32,315,469	25,611,000
Indiana.....	47,294,533	49,760,758	31,353,000	45,461,800	28,447,800
Illinois.....	51,110,542	64,958,757	26,822,000	52,302,900	22,150,000
Missouri.....	21,906,097	29,563,131	29,300,000	27,528,600	23,819,300
Kansas.....	17,321,111	16,336,000	19,900,900	31,248,000	26,851,100
Total winter wheat.....	222,233,535	249,570,880	158,133,900	232,320,330	152,169,200
P. c. of U. S. product.....	48.4	48.9	41.6	40.1	36.2
<b>Spring wheat:</b>					
Wisconsin.....	24,844,999	16,651,735	17,587,000	23,145,400	19,004,900
Minnesota.....	31,611,039	40,385,616	33,522,000	33,630,500	33,773,200
Dakota.....	2,830,289	5,000,000	8,000,000	11,400,000	16,128,000
Iowa.....	31,151,205	33,178,205	18,248,000	25,487,200	27,518,800
Nebraska.....	13,817,007	12,922,677	13,240,000	18,300,000	27,481,300
Total spring wheat.....	107,317,220	108,151,313	94,027,000	111,423,100	124,506,200
P. c. of U. S. product.....	23.4	21.7	24.7	22.1	29.6
Total 11 states.....	329,550,755	357,722,193	252,160,900	343,743,430	276,675,400
P. c. of U. S. product.....	71.8	70.6	66.3	62.2	65.8
Total U. S. 1879-1883.....	459,480,000	498,550,000	346,280,000	504,185,000	420,154,000

We should explain that the production in each state is its total production, and that a little spring wheat is grown in the winter wheat states and a little winter wheat in the spring wheat states, though not much.

Now we find that from 1882 to 1883 in the six winter wheat states (the tier of five from Ohio west to Kansas, inclusive, with Michigan north of them), the production fell off 80 millions, from 232 to 152 millions—more than one-third. In the four states east of the Mississippi the falling off was from 173½ to 102 millions, or more than 40 per cent. These four states do not market their product at Chicago chiefly, except a part of Illinois, and probably the smaller part, for we must remember that substantially all the wheat in Illinois is produced south of the latitude of Peoria, so that it must go out of its way considerably if it goes east by way of Chicago. On the other hand all the spring wheat states market chiefly by way of Chicago, and Kansas and Missouri do so largely. We see, therefore, a reason why wheat receipts should keep up at Chicago in spite of a large decrease in the total western production. The part of the west which ships by way of Chicago has no decrease but a small increase in production.

The production of the winter wheat states was not only less in 1883 than in 1882, but it was less even than in the disastrous year 1881; the spring wheat production, on the other hand, was larger than ever before, due chiefly to the extension of the acreage cultivated in Dakota and Nebraska.

For all the winter wheat states except Kansas and Michigan 1879 was the year of largest production. Michigan produced most in 1879; Kansas in 1882 and more in 1883 than in any year previous to 1882. In the spring wheat states there is no tendency to increase production except in the two westernmost, Dakota and Nebraska. Minnesota, in spite of the great growth in population of its western counties and an immense increase in wheat acreage in its northwestern part, which includes the eastern side of the Red River Valley, has not increased its production, as wheat growing has been abandoned in its southern counties quite as fast as it was introduced in its northwestern counties. It remains, however, the leading spring wheat state, which it has been since 1873. Then and earlier Iowa led for a time, but Iowa cultivates less wheat as it grows older and richer, and cultivates more ground, so that its production last year, when the yield was exceptionally great, was about one-third less than in 1877. And in wheat production generally there is no tendency to increase in the West except in Dakota, Nebraska and Kansas;

and on the Pacific coast in Eastern Oregon and Washington. We can see this by comparing the good years 1879 and 1880 with the good year 1882.

But these three border states have made very decided progress, as their aggregate production, in successive years, given below, shows:

	1879.	1880.	1881.	1882.	1883.
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We find a large increase every year, in spite of the light yield in Nebraska and Kansas in 1881, and together they produced twice as much in 1883 as in 1879, last year having been favorable to all of these states except parts of Dakota. In 1879 they produced 10.3 per cent. of the total production; in 1883, 25.6 per cent.

Dakota is popularly credited with the chief progress in wheat production. In rate of growth it has indeed made more progress than any other state; but in amount of gain Nebraska exceeds it, and Nebraska's percentage of increase since 1881 is nearly as great as Dakota's. Since that year there has been an increase of 30,480,000 in western spring wheat production, 8,128,000 of which was in Dakota and 13,641,000 in Nebraska. Still we hear nothing of the marvelous growth of Nebraska compared with what we hear of Dakota. Yet the growth of agricultural production in Dakota is limited almost to wheat; while Nebraska is more of a corn state than a wheat state, producing 101,278,000 bushels in 1883, against 65,450,000 in 1879. Dakota produced 2,000,000 in 1879 and 4,900,000 in 1883.

If we take the total grain production of these border states we shall be able to see better where most progress has been made.

	1879.	1880.	1881.	1882.	1883.
<b>Dakota:</b>					
Wheat.....	16,123,000	2,830,289	13,297,711	470.0	
Corn.....	4,915,055	2,000,894	2,914,191	146.0	
Oats.....	9,000,000	2,217,132	6,782,868	306.0	
Total.....	30,043,055	7,048,285	22,994,770	326.0	
<b>Nebraska:</b>					
Wheat.....	27,481,300	13,847,007	13,634,293	98.5	
Corn.....	101,278,900	65,450,135	35,828,765	54.7	
Oats.....	21,630,000	6,555,875	15,074,125	230.0	
Total.....	150,390,200	85,853,017	64,537,183	75.2	
<b>Kansas:</b>					
Wheat.....	26,851,100	17,324,141	9,529,959	55.0	
Corn.....	172,800,900	105,729,325	67,071,575	63.5	
Oats.....	27,500,000	8,180,385	19,379,615	237.0	
Total.....	227,212,000	131,233,851	95,979,149	73.1	
<b>The three states:</b>					
Wheat.....	70,480,400	34,001,437	36,458,963	107.2	
Corn.....	278,994,855	173,180,324	105,814,531	61.2	
Oats.....	58,190,000	16,953,392	41,236,608	244.0	
Total.....	407,664,255	224,135,153	183,510,102	82.0	

Surely all these states have made great progress. Dakota has gone at the greatest rate, but began so small that the amount of its gain is trifling compared with that in the states south of it, and only one-eighth of the total increase in the production of the three grains in the three states was there, 35.2 per cent. being in Nebraska and 52.3 in Kansas. We will do well to bear this in mind when considering where to look for the greatest growth in traffic. Dakota, like Minnesota, is essentially a wheat state, though the extreme southern part between the Missouri and Sioux Rivers is probably better for corn than wheat, and produces more and more corn and less and less wheat yearly. From 1879 to 1883, while its wheat production increased 13½ millions, its corn production increased less than 3 millions. Nebraska, making nearly the same gain in wheat, increased its corn production by 35½ million bushels. Kansas, whose gain in wheat was but two-thirds of Dakota's, made a gain of 67 millions in corn, which is nearly three times the increase of Dakota in all grains. The corn states, it is well to bear in mind, are the great traffic-producers. Though they ship a much smaller proportion of their corn than of their wheat (unless they give up raising wheat, as Northern Illinois has done and as Iowa seems to be doing), they are still likely to ship much more corn than wheat, and quantities of fat hogs and cattle besides. And we suspect that the corn states have the brightest future before them, for there is no more new corn territory to be developed, and no formidable competitors of American corn-growers elsewhere in the world, while Dakota, Eastern Oregon and Washington and the country on the Canadian Pacific offers enormous areas of good new wheat land still, and it, like all American wheat, must compete with the product of Russia, as well as Eastern Europe, of Egypt, India and Australia.

For the carriers the fact that the yield per acre of corn is very much greater than that of wheat is a fact of great importance. Two states, Illinois and Iowa, have each produced more than 300,000,000 bushels of corn in a single year; a production of 60,000,000 of wheat has been reached but by one state, Illinois, and by it only in one year.

It will not do to judge of the promise of Dakota by the amount of its production or increase in production, however. The figures show very plainly that it is on the way to become a great wheat-producing state,

very likely the greatest. It is substantially ten years younger than Kansas, and seven or eight years younger than Nebraska, and is now growing as fast as they ever did probably. But growing and grown are two very different terms. The growing state promises traffic but the grown state yields it. People are apt to look for too early performance from the country of whose growth they hear most. We showed some years ago that of the immense increase in wheat production in the United States after 1876, comparatively a small part was in the newer states west of the Mississippi, but by far the larger part in the four comparatively old winter wheat states east of the Mississippi.\*

Now the growth is unmistakably west of the Mississippi. The four winter wheat states this side have much smaller crops both of wheat and corn than in 1879 and 1880; but much the greater part of the growth so far is in the two older border states whose growth was much talked about from 1867 to 1873, but which we hear little of now.

The other part of the country where much new land is being occupied for wheat production is in Eastern Oregon and Washington, partly on the Northern Pacific, but chiefly on the lines of the Oregon Railway and Navigation Company. Unfortunately we can get but a very imperfect idea of the growth here from the Department report, as the figures are for the whole of Oregon, and by far the larger part of its wheat acreage is in the Willamette Valley, which has been settled 35 years. Oregon is credited with 795,300 acres and 13,122,400 bushels in 1883; against 723,000 acres and 12,039,300 bushels in 1882 and 445,077 acres and 7,480,000 bushels in 1879. The crop was nearly all winter-killed in the Willamette Valley last year, and what was grown there was chiefly spring wheat sown in its place, and it is altogether probable that the acreage harvested in this part of Oregon was less than in 1882, so that the increase in acreage in Eastern Oregon was greater than the total increase of Oregon, and it is also probable that by far the larger part of the increase in acreage since 1879 is in Eastern Oregon. In Washington nearly all the acreage is east of the mountains. The acreage of the territory, which was 81,544 in 1879 and 148,000 in 1882, is reported as 170,200 in 1883, and the production was 3,192,700 bushels in 1883, against 2,440,000 in 1882 and 1,931,000 in 1879.

Thus here the increase, though at a rapid rate, is not very large in amount. Oregon and Washington are not large producers of any grain but wheat, and they have evidently to make great progress before they can afford a grain traffic approaching that of even the less important Mississippi Valley states. It is to be said, however, that their grain production is concentrated in two districts of quite moderate area, in the Willamette Valley and east of Wallula, which are served by railroad systems of quite moderate extent. So far as these are concerned it matters comparatively little that far to the north and the south of them no grain is produced or is likely to be. If there were ever so much, they could not reach it. But this limitation of the productive area (which makes the increase in acreage cultivated much more noticeable than if it were scattered over the whole immense area of these states) indicates that there will be no such field for the construction of railroads hereafter in Oregon and Washington as there has been in the Northern and prairie states.

#### The North River Construction Company.

The North River Construction Company, which in connection with the New York, Ontario & Western Railroad Company constructed and financed the New York, West Shore & Buffalo Railroad, has gone into a receiver's hands, and application has been made for a receiver for the New York, Ontario & Western. The contract of the construction company with the railroad company has not been definitely explained, but substantially the former built all the road north of Newburg, and received for it a majority of the stock and all of the bonds of the railroad company except that part of the bonds paid for the road south of Newburg. Thus the profits of the construction company depended upon two things—the cost to it of building the road, and the price it should receive for the securities which it received for building it. This made it a highly speculative enterprise. The contract was made about the time that prices of rolling

\* These four states increased their production from 80 million bushels in 1876 (a bad year) and 105 millions in 1877 (a good year) to 194 millions in 1880, while the states west of the Mississippi increased their wheat production from 70 millions in 1876 and 111 millions in 1877 to 141 millions in 1880. The cis-Mississippi states thus made a gain of 89 millions (85 per cent.) from 1877 to 1880; the trans-Mississippi states a gain of 30 millions (27 per cent.). Even then the opinion prevailed that our great increase in wheat production and exports was in Dakota and Minnesota, while actually the single state of Illinois had made an increase of 27 million bushels from 1877 to 1880, while Dakota's greatest production was about 5 millions.



stock, materials, etc., were highest, and the construction company must have had the benefit of a falling market for many of its purchases, notwithstanding which it is said that the actual cost of the road, which is not yet completed as designed, has been \$4,000,000 more than was estimated. This, however, is not the worst of it. The securities of the West Shore, with which the construction company was paid, have not commanded anything like the price that was expected. It is said that it was thought that bonds and stock together would realize as much as the par value of the bonds. The price paid on the Stock Exchange when they first came upon the market a year ago last September, as a privilege of Ontario & Western stockholders, was very little more than 50—that is, Ontario & Western stock with the privilege of subscribing for bonds at 50 brought only a fraction of a dollar more than the stock without that privilege. At one time last spring the price on the Exchange was above 80, but probably the construction company did not receive so much. This week the price has been as low as 50, and at present prices the whole West Shore issue of \$50,000,000 is worth little more than \$25,000,000.

It is easy to understand that when payment for work is taken in securities liable to such great fluctuations in price, there must be room for great losses as well as great profits. Indeed, if such a contract does admit of great profits it must be essentially dishonest if it does not admit of great losses, and the proper place of the managers of a railroad company who made such a one-sided contract would be in a penitentiary. Now that there was a possibility and expectation of great profits is proved by the fact when 20 per cent. had been paid in on the \$10,000,000 of North River Construction stock it sold for 45, and it is said that the officers of the company then expected to complete their contract without any more payments on the stock. That is, they expected that the securities which they were receiving from the West Shore Company would pay all the expenses thereafter as fast as they became due, and leave a profit of at least \$2,500,000 on the investment, besides interest, which would have been a very moderate profit indeed on a contract of that magnitude, though a very large one on the investment. Afterwards it was necessary to collect the whole amount subscribed, but this seems not to have changed the expectations of ultimate profit, but rather increased them; for, when full paid, the stock is said to have brought 150, which meant that the holders counted on a profit of \$5,000,000 on their contract—a profit on an investment of \$10,000,000, however, not on one of \$2,000,000.

Now, as we have said, except by an essentially dishonest contract, it is not possible that there should be chances of such profits on a contract unless there are also chances of great losses. Full-paid North River Construction Company stock this week sells for about 11, so that, if it were wound up now the losses would be greater than the profits were ever expected to be, it would seem, amounting to \$8,900,000 on the investment of \$10,000,000, besides the interest on the subscriptions from the time they were made.

There need be no great wonder or sorrow over this on the part of the community at large. The office of such a company, if it has any, is to assume risks. If construction companies which take their pay in the securities of the roads they build never lost they would be simply great leeches on such enterprises, as certainly a great many have been, essentially vicious in plan and purpose, and organized with fraudulent intent. Essentially vicious in method, though not necessarily with fraudulent intent, are all such organizations when the managers of the railroad company are substantially the same as the managers of the construction company with which they contract, especially when, as usual, their interest in the construction company is greater than their interest in the railroad company, as self-interest then inclines them to make terms with the construction company which are unfavorable to the shareholders in the railroad company for whom they are trustees. There have been of late years some scandalous instances of this kind, which ought to have ruined the reputation of some men who hold their heads high in the community; but the practice is very much less common, or else is much more concealed, than during the period of rapid construction previous to 1874.

We have said that the terms of the construction company's contract with the West Shore are not definitely known, and it seems that the former may not have assumed all the risks that should have been united with its chances of great profits. Indeed, it is reported that the railroad company agreed to be responsible for the cost of the road above the estimates, which if the additional cost was for additions to the

property beyond what was contracted for, is of course proper. It is on account of this additional cost, we understand, that the West Shore has just paid the construction company \$10,000,000 of second-mortgage bonds.

The passenger travel between New York and Chicago is reported fully to the Joint Executive Committee, but its records of it are secret. Recently a statement of it for September and October found its way into a Chicago paper, containing also a statement of the percentages of the several lines in the pool of passenger earnings, which also has been kept secret. For the two months the total number of passengers ticketed through is given as follows:

	September.	October.	Two months.
New York to Chicago:			
First-class.....	3,388	2,626	6,014
Second-class.....	508	377	885
Total.....	3,896	3,003	6,899
Chicago to New York:			
First-class.....	2,450	2,349	4,799
Second-class.....	1,023	996	2,019
Total.....	3,473	3,345	6,818

Both of these months are good months for through travel—probably the best of the year or nearly so. We find in them an average of 118 passengers daily from New York to Chicago, and of 112 from Chicago to New York—just about two full car loads, which are carried by a dozen or more trains, so that the average per train is less than ten. These passengers are not distributed evenly among the several roads, by any means. The Pennsylvania carried about 40 per cent. and the New York Central about 33 per cent. of those from New York to Chicago, and the Fort Wayne about 42 per cent., the Michigan Central nearly 20 per cent. and the Lake Shore 18 per cent. of those from Chicago to New York. The Chicago & Atlantic carried about 143 in September and 139 in October—an average of 4½ per day; the Nickel Plate, 55 in September and 41 in October, or 1½ per day. The road that carried most had about 1,220 New York passengers in September and in 1,364 in October, or 42½ per day—enough to fill a car nearly full.

Of course the New York-Chicago passengers are not the only ones who travel by the trains between New York and Chicago; if they were we should certainly not have so many trains: one every other day would accommodate them all very well. But it is well to understand how small a part of the travel is made of this New York-Chicago travel, which is probably the largest there is anywhere in the world over a railroad route so long.

It should be understood that the emigrant travel is not included in this statement, which accounts for the fact that so many more second-class tickets are sold from Chicago to New York than from New York to Chicago. The cheapest ticket from Chicago to New York is a second-class ticket; from New York to Chicago it is an emigrant ticket. At certain seasons the emigrant travel from New York to Chicago is probably much larger than all the rest. But for this one might suppose that the people who go to Chicago rich come back poor. This is not always the case.

December earnings have been reported since we commented on the returns of 82 roads last week by 28 more companies, of which 15 have a decrease in total earnings, and in the aggregate, with an increase of 10 per cent. in mileage they have an increase of but 6 per cent. in earnings. The aggregates of the 60 roads that have reported now are:

	1883.	1882.	Inc. or Dec.	P. c.
Miles.....	46,830	43,285	1.	3.545
Earnings.....	\$23,220,193	\$21,814,353	1.	\$1,405,840
Earn. per mile.....	496	504	D.	1.6

The decrease in average earnings per mile is reduced by the roads that reported during the last week, but among them are some that report a decrease which had been showing a fine increase for a long time before, as the Flint & Pere Marquette, the Grand Trunk, and the Southern Division of the Illinois Central, the latter's decrease being no less than 15 per cent. The Grand Trunk's decrease is nearly 10 per cent. The Cincinnati, Washington & Baltimore, a trunk line connection, lost 18 per cent., but the Alton & Terre Haute Main Line made a slight gain.

There are some large increases, however. The Northern Pacific gains no less than 120 per cent., while its increase in mileage was but 67 per cent., and its earnings per mile increased from \$374 to \$491. The latter is a very considerable sum for such a road to earn in winter, and the most encouraging feature in the recent history of the road is the fact that its earnings decreased so little from November to December. In previous years the earnings of the winter months have been much below the average, as the

following statement of them for the three fall and the three winter months will show:

	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.
September.....	\$270,861	\$339,217	\$506,032	\$772,836	\$1,210,000
October.....	295,275	358,456	570,724	829,831	1,324,000
November.....	210,635	300,822	475,611	751,633	1,220,300
December.....	115,272	220,593	391,286	531,098	1,166,652
January.....	81,390	116,508	245,369	392,036	.....
February.....	77,259	78,803	268,935	373,091	.....

Thus the decrease from November to December, which was 45 per cent. in 1879, 27 per cent. in 1880, 18 per cent. in 1881 and 29 per cent. in 1882, was only 4½ per cent. in 1883—was indeed a wholly inconsiderable amount, and much less than most other large roads suffer in milder latitudes.

Another large increase is shown by the Chesapeake & Ohio, in which it stands singular among Southern roads. There are others that show an increase, but it is generally small. Altogether the gains among the roads south of the Potomac and the Ohio just about equal the losses.

The Texas and St. Louis Railroad, one of the longest of narrow-gauge roads, has gone into a receiver's hands. This road is no less than 723 miles long, extending from the Mississippi opposite Cairo southward on a line from 20 to 40 miles southeast of the Iron Mountain road in Arkansas, and about as far northwest of the International and Great Northern in Texas, and having its southwestern terminus near the centre of Texas, but nearly as far west as there is much agriculture—a cotton country nearly all the way. In the northern half of Arkansas and throughout its length in Texas other railroads are near enough to compete with it for local traffic almost everywhere, and in the northern half of Arkansas the population is extremely thin, averaging less than 10 per square mile, or 360 per township six miles square, in most of the counties on the line of the road north of the Arkansas River, along 267 miles of the road, while in the southwestern counties of Arkansas on the road the population averages perhaps one-half more. In Texas the population per square mile is still larger, though it would be called light in almost all parts of the North.

It will be remembered that the Iron Mountain road, which now has large earnings, for several years after it was opened, on a route parallel with that of the Texas & St. Louis, was very meagerly supported. It then had almost all Arkansas to itself, and was soon the chief connection between Texas and the North. It has now the great advantage of serving as the outlet of the larger part of the Texas railroad system. From this the Texas & St. Louis would be debarred by the difference in gauge, even if many of the Texas roads were not part of the Iron Mountain system. It can interchange only at a disadvantage with the independent Texas roads like the Houston & Texas Central and the Gulf, Colorado & Santa Fé. And when it gets into financial difficulties, as now, this difference in gauge increases them. It is not nearly so advantageous a connection with other roads as if it were of the standard gauge, and so other roads will not bid as much for it. It cannot be included in any other system without a costly transformation; it cannot acquire new rolling stock on credit through car trusts or otherwise on so good terms, because this rolling stock will not be generally available elsewhere. Indeed, its special gauge puts it under such disabilities that we may confidently expect that it will be changed within no very long time, whether it succeeds in getting out of its present difficulties without the aid of some connecting road or becomes part of some other system. It has been intimated that it might come under the control of the Illinois Central, and it probably could be made more useful to that road than to any other except, perhaps, the Iron Mountain itself, which is not so well able to buy it.

A correspondent in another column makes some criticism of the recommendations of the Committee on Signals made to the last general time convention, which deserve attention.

It seems to us, however, that altogether too much stress has been placed by nearly all who have written on this subject on the "naturalness" of the motions used for signals. If this is to be a determining element in the selection of signals, the deaf-and-dumb sign language and the sign language common to the Indian tribes who speak different languages (concerning which Lieut. Garrick Mallery has written an interesting work) should be consulted; for there we have signs which are unmistakably natural and developed by the experience of large numbers of people for generations, while we who can communicate by word of mouth cannot be so sure what any given gesture "naturally" conveys. But there is no necessity in the case of railroad signals that those who use them should know what they mean without having learned them. It is a very brief vocabulary that is required, easily acquired in a short



time by any man, whether natural or unnatural. It is of the first importance that the different signals be clearly distinct from each other and readily perceived at the necessary distances and among the different objects and actions which are likely to appear on tracks, in yards, etc.

What our correspondent has to say of the danger of requiring men to forget one code of signals to which they have become so accustomed that they act on them almost instinctively, and learn another, in which some signals may have an opposite meaning, is entirely true. Unfortunately, however, we do worse than that every day, and must so long as the present diversity exists; we require a man to use two languages at the same time and remember that after passing a certain switch "yes" means "no," till he has passed some other switch. Now it is worse to make a man use two or more signal languages at the same time than to make him learn a new one and use that constantly thereafter; and to do this latter some must give up their old language. Now that a new one is to be introduced there is an opportunity to make it as nearly perfect as possible; but probably the worst existing code if universal would be better than the present Babel of codes. Uniformity is much more needed than improvement in the matter of signals; but the establishment of uniformity gives opportunity for making improvement which ought not to be neglected. Therefore there should be a full discussion of the question now, when suggestions are much more likely to secure attention than heretofore, or than they will after a uniform code has been adopted.

The degree of intelligence with which some legislators deal with important questions is well shown by a bill recently introduced in the United States Senate by Senator Van Wyck, of Nebraska, which, premising that the Union and the Central Pacific railroads are earning much more than 10 per cent. on their cash cost, enacts that the rates on all freight over these roads be reduced to one-half the average rates charged by them in 1882 and 1883. Now in 1882 the *working expenses* of the Union Pacific lacked but \$685,000 of absorbing the 50 per cent. of its gross earnings, and for the first eleven months of 1883 these expenses (not including several lines besides the Union Pacific proper) were \$1,260,000 more than half the gross earnings. The Central Pacific in 1882 spent \$720,000 less than half its gross receipts. Thus Mr. Van Wyck's bill would take from these two roads substantially the whole of their net earnings, and bankrupt them when the first coupon or any of their bonds became due. Further, even if a reduction to this extent in the gross earnings were practicable or advisable, it could not be advisable on a very large portion of the traffic, for a great deal of it is now carried at a price which barely covers the cost, if it does that. For instance, certain freights from New York to San Francisco are carried for \$1.50 per 100 lbs., the Union Pacific's share of which is probably less than 50 cents, and possibly 40 cents, or less than 1 cent per ton per mile. Its *average* receipt per ton per mile in 1882 was 2.10 cents, and the average expense certainly more than 1 cent. Other through freight is charged four times as much, and some local freight probably ten times as much as the lowest rate. But all these things have no interest to a certain class of legislators, who are ready to solve complex questions by short and easy methods.

The New York Railroad Commission has rendered its first annual report, of which only an incomplete abstract has yet reached us. From this it would appear that it has taken up more subjects than it would be possible for any three men to treat adequately in so short a time as that which has elapsed since this Commission was appointed. Judging from the abstract the report will not take high rank among documents of this kind, but we shall know better when the complete report is at hand.

East-bound rates were restored, beginning with Monday last, as the result of a Joint Executive Committee meeting last week at which all parties declared that the rates could be maintained, that they ought to be maintained, and that they would do all possible to maintain them; while Mr. Fink gave it to be very plainly understood that an irregularity would be at once followed by a general reduction, and it is certain that he will have the active aid of some of the railroads at least in discovering secret reductions should any be made. It should not surprise any one if it should become necessary to make such a general reduction again, for habits so long practiced are not easily broken. Perhaps a month or two spent in demonstrating that cutting rates slyly on a few shipments inevitably and quickly results in cutting off all profits on all through shipments would be, eventually,

the most profitable month the railroads ever had. Apparently nothing can make business large at this time, and so a general reduction, though it should take away all profit, is not likely to take away a great amount of profit.

#### Massachusetts Railroads.

The text of the report of the Massachusetts Railroad Commission for the year ending with September last has already been published. The 65 companies which the whole or part of their lines in Massachusetts worked altogether at the close of the fiscal year 2,783 miles of road, which is only 4½ miles more than the year before. They had a considerable increase of second track, however, amounting to 75½ miles, making it 825½ miles, or a trifle less than 30 per cent. of the main track. The sidings amounted to 1,109 miles more, and they increased 63 miles during the year.

Within the boundaries of Massachusetts at the close of the year there were 1,953¼ miles of road, 587 of second track (also 30 per cent. of the road), and 799½ of sidings, making 3,340 miles of track, which is an increase of 83 miles, or 2½ per cent., during the year:

The equipment reported is as follows:

	1883.	1882.	Increase.	P. c.
Locomotives.....	1,286	1,222	64	5.2
Passenger cars.....	1,700	1,638	62	3.8
Mail, baggage, etc., cars.....	482	463	19	4.1
Freight cars.....	28,008	26,382	1,626	6.2

The additions of locomotives and passenger cars are larger than have ever been reported before in one year; but the additions to freight cars were 2,477 in 1880, 2,516 in 1881, and 1,880 in 1882, against 1,626 in 1883. The increase in freight-cars has been 8,499, or 43½ per cent., since 1879 while the increase in freight traffic was 48 per cent. The increase in train-mileage meanwhile has been 30 per cent., but the increase in locomotives only 20 per cent. If the aggregate power or weight of the locomotives was reported, however, probably a very much greater increase in locomotive capacity would be shown, though not in capacity for making mileage. The average performance per locomotive in revenue train-miles was 18,383 miles in 1879, and 19,924 in 1883.

Other statistics of the whole system reporting are:

	Total 1883.	Inc. or Dec.	Total Per mile.
Capital stock.....	\$122,367,572	+\$608,690	\$43.294
Net debt.....	72,933,291	+ 1,019,485	26.295
Earnings:			
Passenger.....	\$18,897,586	+ 1,055,630	6.791
Freight.....	21,033,511	+ 1,506,417	7.566
Other.....	1,704,703	- 20,616	612
Total from transportation.....	\$41,635,800	+ \$2,541,431	\$14.968

The report gives the earnings per mile as \$12,946 instead of \$14,969, which is the result of dividing the total transportation earnings by the total mileage reporting. It does not give the total working expenses, but says they were \$9,192.56 per mile of road, and 71 per cent. of the earnings. The sum named is 71 per cent. of the \$12,946, which is given as the earnings per mile. These latter figures cannot be true unless earnings are reported from 3,216 miles of road instead of the 2,783 which the report gives as the total.

The gross earnings were 6½ per cent. more than in 1882, and larger than ever before. There has now been an increase every year since 1877-78, previous to which there had been a decrease every year since 1873-74. The decrease in five years amounted to \$5,162,358 (15½ per cent.), but it was more than made up within two years. The percentage of increase last year, however, was the smallest since 1879.

Passenger and freight earnings, or rather earnings by passenger and by freight trains, have been nearly equal to each other for ten years, now one and now the other being a little the greater. Freight earnings began to increase largely first, however, and in 1879-80 they were \$3,200,000 (22 per cent.) more than passenger earnings; but in the next two years passenger-train earnings increased most, \$5,035,000 against \$1,786,000, and then, in 1881-82, they were very nearly together again, passenger earnings being \$4,000,000 the most. Last year passenger earnings increased 5½ per cent.; freight earnings 7½ per cent.

The net income last year amounted to 5.4 per cent. on the permanent investment in the roads, and for ten years the amount of net income (gross income less total expenses and rents) and its percentage of the investment has been:

Year.	Net income.	P. c. on investment.	Year.	Net income.	P. c. on investment.
1874-75.....	\$10,703,302	6.2	1878-79.....	\$10,154,014	5.8
1875-76.....	9,616,651	5.4	1879-80.....	11,191,816	6.2
1876-77.....	9,543,821	5.6	1880-81.....	10,701,752	5.6
1877-78.....	9,344,088	5.5	1881-82.....	10,902,203	5.5
1877-78.....	9,232,812	5.4	1882-83.....	10,900,480	5.4

Thus there has been very little increase in the amount of net income in the last five years. Since 1880, when it was largest, there has been an increase of \$3,629,000 in the stock and of \$13,761,000 in the net debt of the railroads reporting.

There were 34 companies that paid dividends last year, amounting to \$6,379,721, which is \$108,581 more than was paid the year before. The amount paid was equal to 5.21 per cent. on the whole capital stock. The interest payments were \$4,756,085, which is \$465,000 more than in 1879-80, when the net income was greatest.

The traffic of the Massachusetts roads was larger last year than ever before, and the increase over 1882 was considerable—5.7 per cent. in passenger traffic and 8 per cent. in freight. The traffic for ten years has been in millions of passenger and ton-miles.

Year.	Pass. miles.	Ton-miles.	Year.	Pass. miles.	Ton-miles.
1874-75.....	681.9	597.1	1878-79.....	616.0	806.1
1875-76.....	655.6	579.0	1879-80.....	708.6	959.4
1876-77.....	639.6	628.6	1880-81.....	788.4	1,080.8
1877-78.....	605.5	684.8	1881-82.....	892.3	1,130.1
1877-78.....	593.1	715.5	1882-83.....	943.2	1,220.8

Thus freight traffic has increased without interruption

since 1874; passenger traffic only since 1878. From 1878 to 1883 the increase has been 60 per cent. in passengers and 70 per cent. in freight. Since 1880 the increase has been 33 per cent. in passengers and 27 per cent. in freight, though there has been a decrease of net income meanwhile. The whole traffic is equal to a little more than twice the passenger traffic and to 55 per cent. of the freight traffic of the New York Central in the last year.

The average rates per ton and per passenger per mile for the last eight years have been in cents:

Year.	Cents per Pass. mile.	Cents per Ton mile.	Year.	Cents per Pass. mile.	Cents per Ton mile.
1875-76.....	2.40	2.241	1879-80.....	2.24	1.850
1876-77.....	2.40	2.070	1880-81.....	2.20	1.722
1877-78.....	2.40	1.936	1881-82.....	2.00	1.727
1878-79.....	2.12	1.838	1882-83.....	2.01	1.723

The rates have changed less in Massachusetts than in almost any state further west. For the last three years we see that the freight rate has been practically stationary. The decrease in the freight rate last year reduced the freight earnings only \$49,000. The freight rate is much higher than in most states east of the Mississippi and north of the Potomac and Ohio, which is chiefly because an exceptionally large proportion of the traffic is local and consists of short hauls, the average last year being 60½ miles.

The average train-loads have been increasing in Massachusetts, and for passengers they are larger than in most other states, but for freight they are still very small, though 60 per cent. more than six years ago. For ten years they have been:

Year.	Av. train load. Pass.	Av. train load. Tons.	Year.	Av. train load. Pass.	Av. train load. Tons.
1873-74.....	69.3	64.2	1878-79.....	57.1	89.7
1874-75.....	64.6	63.0	1879-80.....	62.4	87.8
1875-76.....	61.3	63.3	1880-81.....	63.5	104.0
1876-77.....	57.8	68.9	1881-82.....	65.2	106.6
1877-78.....	57.6	73.4	1882-83.....	66.2	107.3

We see that in the earlier years the average number of passengers and of tons of freight per train was about the same—the freight train extraordinarily small, averaging less than seven full car-loads. The average passenger-train load decreased as passenger traffic decreased, but has increased as the traffic increased. The freight-train load has grown constantly, largely because there is more through traffic, doubtless. That it is still so small is probably due to the same fact that makes the rate so high—a preponderance of local traffic and short hauls.

The average passenger journey is also very short, only 15½ miles last year, and not more than 16 miles in any of the last 10 years, while it has varied very little—only between 15½ and 16 miles. We believe that season-ticket suburban passengers are included, and they probably make a very considerable proportion of the whole number of journey, and bring down materially the average length of journeys. Then the longest journey possible on a Massachusetts road is only about 200 miles, and in a manufacturing state like it, full of towns, the larger part of the travel probably is what we may call neighborhood travel. Even in New York, where many journeys are more than 400 miles, the average journey in 1881-82 was but 25 miles. The average fare per mile is nearly the same in both states—2.1 cents in Massachusetts and 2.02 in New York. In a state like Massachusetts probably a very large increase of travel could be had by introducing regular second-class fares, a third or a fourth less than the first-class; but whether there would be any profit in it is not so clear. To a very considerable extent this traffic can be, and probably is, developed by various commutations.

The average number of men employed on the Massachusetts railroads last year was 29,844, which was 9 per cent. more than the previous year, though the earnings increased but 6½ per cent., and the train mileage but 5½ per cent. The number last year was at the rate of 10.7 per mile of road worked and 23.2 per locomotive.

Chicago through shipments eastward for the first four days of January—the four days before the reduction of rates from 30 to 20 cents—were 14,169 tons, which is at the rate of only 24,796 tons per week, which is a smaller amount than in any week of 1883, except the first week of July, and less than in any week of any other year since 1879, except one week of a yard-men's strike in May, 1882, and four weeks in July and one in August of the same year. For five successive years the shipments of the first week of January have been, in tons:

1880.	1881.	1882.	1883.	1884.
40,238	67,420	55,189	65,900	24,796

Thus the shipments this year were 62 per cent. less than last year (when rates were better maintained than this year), 55 per cent. less than in 1882 (when the freight was carried at the lowest rates ever known), 63 per cent. less than in 1881, when the rate was 35 cents and well maintained, and 38½ per cent. less than in 1880, when the rate was well maintained at 40 cents, against a nominal rate of 30 cents this year, and an average rate of probably not more than 25 cents, while some shipments were taken at 20 cents, which caused the open reduction to 20 cents from the 5th to the 13th, inclusive. The bad weather doubtless prevented some shipments, but it was the roads west of Chicago rather than those east of it that were blocked, and with the great accumulation of wheat in Chicago there could have been no lack of freight if holders had had any disposition to send forward their grain.

The percentage of the shipments by each route in the first four days of January was: Chicago & Grand Trunk 5.2; Michigan Central, 19.2; Lake Shore, 28.9; Nickel Plate, 6.0; Fort Wayne, 21.4; Chicago, St. Louis & Pitts-



burg, 7.2; Baltimore & Ohio, 4.4; Chicago & Atlantic, 7.5. The proportion by the Lake Shore is about twice as great as its average since July, and that by the Fort Wayne is exceptionally large. There is nothing particularly notable in such an irregularity for so short a time as four days, except that, coming at a time when there was much cutting of rates, it indicates that these roads were offering shippers at least as good terms as any others.

For the week ending Jan. 12 the incomplete report of through and local shipments of flour, grain and provisions from Chicago eastward gives a total of 42,126 tons, against 67,544 in the corresponding week of last year, and 32,882 tons in the previous week of this year. The increase over the previous week is a large one, but it did not make the shipments large, however, for in the week ending Jan. 5 shipments were greatly reduced by snow blockades, and were the smallest for many months. Last week the open rate was 20 cents per 100 lbs., against 30 cents the week before, but rates were not adhered to before the reduction, and the average very likely was as low as 25 cents, and if so the gross receipts from the shipments last week were nearly the same as the week before, when the shipments were nearly a quarter less. The great decrease compared with last year is not so unfavorable as it looks, because last year the shipments were extraordinary, as they were also in 1882, when the grain was going forward near the end of the railroad war at about 10 cents per 100 lbs., and in the second week of January 55,986 tons were shipped. The grain shipments reported last week were only 22,504 tons, and considering that the rate was so very low, and that it was expected that it would soon be advanced, and that there is such an enormous stock in the Chicago elevators, this is a very small amount. Possibly the complete report will make a better showing.

The number of passengers arriving at Castle Garden last year was 388,267, against 455,450 in 1882, a decrease of 67,183, or 14 per cent. The number arriving at Castle Garden was 64 per cent. of the total arrivals of immigrant in the United States in 1882, and not far from the same percentage this year doubtless (the total arrivals of immigrants in the United States has not yet been reported for 1883). The arrivals of cabin passengers in New York were nearly the same both years—58,596 in 1883 and 57,947 in 1882. There were thus 12.7 steerage passengers to one cabin passenger in 1882 and 15.1 last year. At the prevailing rates the cabin passengers probably paid the steamers something like \$4,395,000 and the steerage passengers \$10,871,400 for passage in this direction this year. The earnings in the other direction were doubtless nearly as great from cabin passengers, but very little from steerage passengers. But altogether we may assume that the steamers plying between New York and Europe earned as much as \$20,000,000 from passengers last year, which is at the rate of more than \$10,000 per trip. There were 972 steamship arrivals in 1883, against 1,021 the previous year; 273 of the arrivals last year were from Liverpool, 103 from Glasgow and 61 from London, so that nearly one-half of the whole number were from Great Britain.

The date of the meeting of the Chicago, Burlington & Quincy and the combination of the other Chicago-Council Bluffs roads with the Union Pacific has been postponed from the 17th to the 24th inst., but meanwhile it is said that a committee of Burlington directors will confer with a committee of Union Pacific directors, so that by the time of the meeting the whole matter may be arranged. The Burlington, it will be remembered, on declining to become a party to the combination with the Union Pacific made by the other Iowa roads was asked to pool its business with the combination, it forming one party and the Burlington another. This would make it necessary to decide just what was Burlington business and what combination business. The Burlington was not prepared to take up this new proposition, and therefore another meeting was appointed for the 17th, and is now postponed for a week. The fact that negotiations are going on increases the probability of a settlement. An agreement to divide Utah business, which has been more demoralized than any other, between the Union Pacific and the Denver & Rio Grande, which connects with the Burlington, was made last week by representatives of all the lines interested, but higher authority on the Union Pacific refused to accept it until other questions are settled.

The Union Pacific reports for November last only a slight change from 1882 in either earnings or expenses—an increase of \$19,806 (0.7 per cent.) in gross earnings and of \$18,023 (1 per cent.) in expenses, so that the difference in net earnings is only \$1,783. The expenses were 62.4 per cent. of the earnings both years, which is very much above the average proportion on this road, the percentage for the 11 months ending with November having been 54.6 per cent. in 1883 and 52.9 in 1882. There is nothing unusual in this, as expenses are likely to vary considerably from month to month, and they were, we see, an unusual percentage in November in both years.

The New York, West Shore & Buffalo Railway, though a member of the trunk-line combination so far as affects freight traffic, is not a party to the agreement concerning passenger business, except that it has agreed to maintain the regular rates. Neither it nor the Lackawanna, therefore, is affected by the orders of the Joint Executive Committee to withdraw from sale in New York tickets of the Rock Island and the Chicago & Alton west of Chicago. The

West Shore is equipped for a first-class through passenger traffic, and by working with these roads when the other New York roads work against them it is likely to secure all the business they can give it. It shares with them the reduction in rates which the other trunk lines share only with their competitors west of Chicago, and in so far helps them in their contest; whether the Grand Trunk, which connects them, acts with the other Joint Executive Committee roads we cannot say. It is not a party to the passenger pool, but it has agreed generally to work under the rules of the Joint Executive Committee.

Chicago, Burlington & Quincy earnings last November were much greater than in any previous November, but the increase was not so enormous as it has been in some previous months, amounting to \$372,353, or 17 per cent., \$215,150 of which was absorbed by an increase in working expenses, leaving the gain in net earnings \$157,202, or 11½ per cent. It seems very unreasonable to ask for anything better than this, but the road had made such a marvelous showing for the three months previous to November that we are led to expect the impossible. Its increases in gross and net earnings for five months have been:

	July.	August.	Sept.	Oct.	Nov.
Gross.....	\$199,699	\$408,266	\$722,765	\$472,035	\$372,352
Net.....	33,769	186,005	247,715	320,177	157,202

Thus the increase in net earnings was not half as great in November as in October and December, nor was it as large as the average increase in monthly net earnings, which has been \$230,000. For the eleven months ending with November the road made an increase of 23.6 per cent. in gross and 26¼ per cent. in net earnings, the latter amounting to \$2,533,902, which alone is enough for 3¼ per cent. on the stock.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads in 1883 as follows:

*Cincinnati, Van Wert & Michigan.*—Track laid from Gilberton, O., south to Celina, 16 miles.

*Danville, Mocksville & Southwestern.*—Extended from Smith's River, N. C., southwest to Leaksville, 2 miles. Gauge, 3 ft.

*Louisville, New Orleans & Texas.*—Extensions of this road are reported as follows: From Baton Rouge, La., north 11 miles; from Port Gibson, Miss. south to Cole's Creek, 18 miles, and (north of Vicksburg) north to the Washington County line, 30 miles.

This is a total of 77 miles of new railroad laid in 1883, making 6,346 miles thus far reported for that year, against 10,465 miles for 1882.

New track is reported laid in 1884 as follows:

*Milwaukee & Northern.*—The branch of this company's Wisconsin & Michigan line to Menominee was completed Jan. 7; of this 4 miles were laid in 1884.

This is the first track reported for the current year. The total track reported laid to the corresponding date for 12 years is as follows:

	Miles.		Miles.
1874.....	4	1878....	..
1875.....	24	1879....	..
1876.....	4	1880....	10
1877.....	23	1881....	14
1878.....	10	1882....	99
1879.....	..	1883....	..

The statements include *main track only*, no account being taken of second tracks or other additional tracks or sidings. The weather thus far this month has not been favorable for tracklaying, and not much new road is likely to be reported for some weeks yet.

#### "El Gobernador."

We publish this week illustrations of an enormous engine now being built by the Central Pacific Railroad, at its shops at Sacramento, Cal. This engine is designed to work the inclines by which the Southern Pacific Railroad crosses the slopes of the Sierra Nevada mountains. Its immense size fairly justifies the title of "El Gobernador," which, we presume, is polite Spanish for "The Boss."

A somewhat similar but smaller engine ("Mastodon") was exhibited at Chicago last year, but this engine differs from that in having ten instead of eight wheels coupled, and in having an improved and simplified form of valve gear. The "Mastodon" had four valves to each cylinder, two main valves and two riding cut-off valves, worked by three eccentrics, and deriving also some motion from the cross-head. This valve gear is illustrated and described in our issue of Oct. 20, 1882. In "El Gobernador" this arrangement has been simplified and improved, and but two valves and one eccentric are used for the valve motion of each cylinder. The opening of the port is given by the eccentric, and the lap and lead are derived from the engine cross-head.

As far as can be judged from a model the distribution effected by this valve gear is excellent. The valve opens sharply for admission, until the port is wide open, then remains almost stationary, and finally closes again with great rapidity. One valve is used at each end of the cylinder, as will be seen from the drawing, each valve being actuated by a separate spindle. The travel and cut-off can be varied by moving a die block along a curved link pivoted on a fixed centre. This link is made to oscillate by means of a single long eccentric rod. The amount of motion given by the eccentric determines the opening of the port, and the lap and lead, which are invariable, are given by the motion of the cross-head. This gear is the invention of Mr. A. J.

Stevens, the General Master Mechanic of the Central Pacific Railroad, under whose superintendence the engine is now being built. We hope at some future time to give drawings and further particulars of this valve gear.

The leading dimensions of the engine are as follows:

Diameter of cylinders.....	21 in.
Stroke of cylinders.....	36 in.
Diameter of driving-wheels.....	57 in.
Driving-wheel base.....	19 ft. 7 in.
Total length, engine and tender.....	67 ft. 5 in.
Total weight of engine, ready for service.....	146,000 lbs.
Weight of tender, without coal or water.....	50,650 lbs.
Weight of water in tank (3,600 gallons).....	30,000 lbs.
Weight of coal.....	10,000 lbs.
Total weight, engine and tender, fully equipped.....	236,650 lbs.
Weight on drivers.....	128,000 lbs.

The tractive force of this engine is 278.6 lbs. for every pound of average pressure per square inch on the pistons. Some indicator diagrams taken from the "Mastodon" were exhibited at Chicago, and showed at a speed of 8 miles an hour an average pressure on the pistons of 124 lbs. per square inch. Assuming that a similar average pressure could be maintained in the cylinders of "El Gobernador," this engine would exert the enormous pull of 34,546 lbs., less loss due to its gravity and internal friction. On an incline of 118 ft. to the mile, on which the engine is to work, probably about 6,000 lbs. would be thus absorbed, leaving 28,500 lbs. for the traction of the cars. Assuming friction at 4 lbs. per ton and the force of gravity on that incline at 44 lbs. per ton, the cars would have a total resistance of 48 lbs. per ton, and as 28,500 ÷ 48 = 594, the total weight of the cars which could be drawn up the incline under these conditions would be 594 tons. Deducting 10 tons for the weight of the caboose, the cars themselves would weigh 584 tons, which is equal to a train composed of 28 loaded cars, each weighing empty 21,500 lbs., and each laden with 20,000 lbs. This is probably the maximum load that could be hauled under the favorable conditions assumed. The "Mastodon" has conveyed a train of 20 loaded cars weighing 422 tons up the incline of 118 ft. per mile, and as "El Gobernador" is a more powerful engine it will probably draw a proportionally heavier train.

In order to convey an idea of the relative size of "El Gobernador" as compared with other large engines a table is subjoined, giving a few leading dimensions of some of the largest engines, both in this country and Europe. It will be noticed that "El Gobernador" possesses more tractive power and has more weight on the drivers than any of the other engines, though it would probably not be so severe on the track as the less weighty and powerful French and Swiss engines which concentrate a very heavy load on a short wheel-base. These engines, moreover, have no truck, and the leading drivers have consequently to guide the engine and bear the pitching motion due to the overhanging cylinders. It is somewhat surprising to find that the English engine, though the most powerful tender engine in use in Great Britain, is the least powerful and lightest on the track of any of the typical large engines we have selected. This probably arises from the fact that freight trains are lighter and are run at a higher speed there than in any other country. The engine in question runs at about 20 miles an hour, including stops, and works a maximum grade against the load of 39 ft. to the mile, while all the other engines are designed to ascend long mountain inclines of 100 ft. or more to the mile. This engine was illustrated and described in our issue of March 5, 1880.

The engine for the Northern Pacific Railroad was constructed by the Baldwin Locomotive Works, and was exhibited at the Chicago Railway Exposition last year. It is somewhat heavier than is usual for engines of this class, having an extra amount of heating surface in order to make steam when burning lignite or inferior coal. This engine was illustrated in our issue for June 22, 1883. The engine for working the St. Gothard Tunnel was constructed by Messrs. T. A. Maffei, of Munich, Germany. The French engine is fitted with piston valves worked by Walschaert's valve gear.

	So. Pacific.....	So. Pacific.....	No. Pacific.....	Flight connected (Switzerland).....	State (France).....	Gt. Eastern (England).....	Mogul.....
Type of engine.....	El Gobernador	Mastodon	Consolidation	Flight connected	Eight coupled	Eight coupled	Mogul
Cylinders, dia. and stroke, inch.....	21x36	20x30	20x24	20x24	21½x26	21½x26	19 x 26
Drivers, dia. in.....	57	56	49	46	50	50	58
Weight on drivers, lbs.....	128,000	102,700	97,000	114,340	117,505	117,505	85,900
Tractive force per lb. average pressure in cylinders, lbs.....	278.6	226.4	196.0	218.4	224.5	224.5	161.8
Maximum boiler pressure, lbs. per sq. in.....	135	130	130	147	132	132	140
Wheel-base, drivers.....	19 ft.	15 ft.	12 ft.	12 ft.	13 ft.	13 ft.	15 ft.
Weight on rails per foot of driving-wheel base.....	6,537	6,517	6,929	8,932	8,841	8,841	5,415

These figures enable an approximate idea to be formed as to the relative power of these engines, but it must be borne in mind that the late cut-off and small amount of compression given by Mr. Stevens' valve gear gives a higher average pressure on the pistons than is possible in the European engines. An average pressure on the piston of 100 to 110 lbs. to the square inch is about the maximum possible, with the 70 to 77 per cent. maximum cut-off adopted there; whereas indicator cards taken on the "Mastodon" show an average pressure of no less than 124 lbs. to the square inch. Taking this into account, "El Gobernador" can probably exert 50 per cent. more tractive force than the St. Gothard or French engine. This would appear to amply vindicate its claim to be considered the most powerful engine in the world.



## TECHNICAL.

## Locomotive Building.

The Brooks Locomotive Works, of Dunkirk, N. Y., are now represented by Mr. H. B. La Rue, who has been appointed Traveling Agent. He has authority to submit specifications and to quote prices for locomotives from these works.

The Rhode Island Locomotive Works in Providence last week delivered two heavy passenger engines to the Central Vermont road.

The Central Vermont shops at St. Albans, Vt., recently turned out a new passenger engine for the road, and have another nearly completed.

The Newth locomotive ash-pan, in use on the Flint & Pere Marquette road, has, it is claimed, worked remarkably well during the heavy snow storms recently experienced on that road.

## Car Notes.

We copied from the *National Car-Builders* last week an item stating that the old Patten Car Works at Bath, Me., were soon to be started up by the Messrs. Patten, in connection with some New York capitalists. We are informed on the best authority that there is no foundation whatever for this statement, and that there is no probability that the Patten Car Works will be started up again either by the Messrs. Patten or by other parties.

The Chicago, Rock Island & Pacific shops in Davenport, Ia., recently turned out six cars intended especially for carrying agricultural implements. They are also building 150 flat cars for the road, besides doing the usual repair work.

The Muskegon Car & Engine Works at Muskegon, Mich., have taken a contract to build 500 box cars for the New York, Chicago & St. Louis road.

## Bridge Notes.

The Berlin Iron Bridge Co. at Berlin, Conn., has just completed an iron highway bridge at Salamanca, N. Y., over the Allegheny River.

Cofrade & Saylor, of the Philadelphia Bridge Works at Pottstown, Pa., have taken the contracts for two iron bridges over the Schuylkill River near Reading, Pa., on the Pennsylvania Schuylkill Valley line; also a contract for two short bridges over a highway road and over the Berks & Lehigh track on the same line.

The Delaware Bridge Works, Mr. Charles Macdonald, President, have taken the contract for the iron bridge over the Schuylkill at Poplar Neck, Pa., for the new Pennsylvania line to Reading.

## Iron Notes.

Warwick Furnace, at Pottstown, Pa., 15½ by 55 ft., made in the third year of its present blast 21,876 tons (2,260 pounds) of pig-iron, 94.76 per cent. being No. 1 and No. 2 foundry and No. 3 mill, 2.27 per cent. mottled, and 2.95 per cent. white. Fuel consumed per ton of iron, 1.2875 tons; flux consumed per ton of iron 0.875 ton. The ore averaged 50.2 per cent. Average temperature of blast 569° F. During the year the furnace was idle one week, 3½ consecutive days the first six months and 3½ days the second, to clean boilers. The other stoppages averaged five hours per week. The fuel used was three-quarters anthracite coal and one-quarter coke.

The Windsor Locks Steel Co., at Windsor Locks, Conn., is running full double turn, and is adding largely to its plant.

The Coplay Iron Co., at Coplay, Pa., has all three of its furnaces now idle, the last one having gone out of blast last week.

The new rolling mills at Houston, Tex., have taken a contract to supply the rails for a new street railroad in Galveston.

## Manufacturing Notes.

The Fitchburg Machine Works in Fitchburg, Mass., recently completed for the Taunton Locomotive Works a lathe having 72-in. swing and 18 ft. length of bed. It weighs 13 tons.

The Deane Steam Pump Co. in Holyoke, Mass., is now running its works full time, with 225 men employed. They are at work on a number of orders for large pumps, including several for export.

## The Rail Market.

*Steel Rails.*—Little business is reported, although it is understood that there are still some heavy orders to be placed. An unusual number of contracts have been made early and the mills are, for the most part, pretty well supplied for summer work. Quotations are about \$34.50 to \$35 per ton at mill, although it is said that a few orders have been taken at \$33.50 per ton. The large orders placed have, however, made the rail manufacturers more confident and unwilling to concede too much.

*Rail Fastenings.*—Spikes are quoted at \$2.50 per 100 lbs. in Pittsburgh, and track-bolts at \$2.80 to \$3. Splice-bars have been sold at 1.8 to 1.9 cents per pound. The market is a little stronger, with slightly improved demand.

*Old Rails.*—Sales of old iron rails are reported at \$22 to \$22.50 per ton in Philadelphia for tees, and \$24 to \$24.50 for double heads. The supply is good just now, and there is rather a pressure to sell.

## Electric Lighting on the Underground Railroad.

A very pronounced departure from the ordinary practice of electric lighting has just been inaugurated on the Metropolitan Railway, London, several stations on which line are now illuminated by means of the Gaulard-Gibbs system of secondary generators. The invention is based upon the influence of electric currents upon bobbins of insulated wire, and in producing their results the inventors have followed the lines traversed by Ampere, but with far more important and practical issues.—*Journal of Progress.*

## Leather Wheels.

Leather wheels are made in France for railroad and other cars. The inventor of the process is M. de la Roche. Untanned buffalo hides are cut into strips, and these are built up into solid discs, which are strongly held together by two iron rings after they have been subjected to hydraulic pressure.—*Engineering News.*

## Electric Railroads in the Patent Office.

The controversy respecting the electric railway is now fairly inaugurated in the Patent Office. The proceedings have been somewhat delayed by the taking of testimony abroad under a commission in support of the claims of the celebrated German scientist, Dr. Werner Siemens, of Berlin. Counsel were heard in argument upon the merits of the case last week, before the Examiner of Interferences. The point is to construct a commercially practicable railway, which can compete with the existing modes of transportation.

A small section of road was built and operated by Siemens, at the exposition at Berlin, in 1879, and there are now several short lines in operation in various parts of Europe, and notably one at the Giant's Causeway, in Ireland, familiar to travelers. Edison has a line 2½ miles long, at Menlo Park, N. J., fully equipped and in daily operation, for the benefit of visitors and pilgrims to the

shrine. There is also an experimental road at Saratoga Springs, and another claimant is Stephen D. Field, of New York, a nephew of Cyrus W. Field.—*Scientific American.*

## British Exports of Rolling Stock.

The London Railway News of Dec. 29 says:

"Until the United States entered the field some few years since British manufacturers of rolling stock had practically the supply of carriages and wagons for the colonies and most new countries in their own hands. Many European countries also were content to buy most of their stock from English makers, but of late years workshops have been provided within their territories, and orders have consequently not been, proportionately, so freely received. There is still, however, a very large business to be done—on the continent principally with Spain and France—and last year the figures showed a considerable increase over previous years, principally in connection with the increased demand from the colonies and South America. The total value of our exports of railway carriages and wagons for 1878 was £187,331, while, as will be seen from the subjoined figures, the total last year was no less than £331,208, which appears to be the largest on record. As in the case of many other of the Board of Trade statistics, the form of the returns relating to rolling stock has lately been altered, so that it is almost impossible to give a fair comparison over an extended period of years.

CARRIAGES.				
	1879.	1880.	1881.	1882.
Europe .....	£7,698	£16,930	£31,129	£20,648
Colonies .....	17,030	41,353	17,527	124,063
Mexico and South America .....		14,875	12,372	33,414
Other countries .....	5,212	2,403	7,101	37,323
Total .....	£29,940	£75,531	£70,126	£215,448
WAGONS.				
	1879.	1880.	1881.	1882.
Europe .....	£10,270	£49,738	£78,150	£59,368
Colonies .....	62,839	135,480	25,563	241,978
Mexico and South America .....	15,640	30,169	45,094	77,091
Other countries .....	5,647	5,902	7,863	37,323
Total .....	£94,393	£220,389	£156,612	£415,760
Grand total .....	£124,336	£304,920	£226,738	£631,208

"The figures relating to the exports of 'locomotives, steam-engines and parts thereof,' for the past three years, to European countries, are, on the whole, satisfactory. The totals for 1880 and 1881 compare very favorably with the returns of preceding years, and, for 1882, the figures have been well maintained. It will be noticed that France, Spain, Italy and the Netherlands—a large portion of which latter shipments are intended for Germany—are the principal customers.

	1880.	1881.	1882.
France .....	£29,925	£ .....	£122,935
Germany .....		58,848	
Netherlands .....	69,365	6,623	66,748
Belgium .....	3,626	76,018	6,545
Scandinavia .....	9,293	14,861	
Russia .....	3,085		
Spain .....	45,946		27,740
Italy .....	16,449	24,847	25,519
Portugal .....			8,347
Turkey, Greece and Roumania .....		5,144	
Total, Europe .....	£257,189	£186,341	£257,834

"Including agricultural and other steam engines, not included in the above figures, the total value of the exports in this department was £108,585 in 1880, £1,270,305 in 1881, and £840,433 last year."

## Awards for Signals Exhibited at Chicago.

The Union Switch and Signal Co., of Pittsburgh, has received the highest premiums offered for signal appliances by the National Exposition of Railroad Appliances in Chicago for 1883, being two gold and three silver medals, as follows: Gold medal for best system, interlocking, yard switches; gold medal for best electric signaling device for block or other signals; silver medal for best signal for railroad crossings; silver medal for best depot signal; and silver medal for best semaphore.

## A New Railroad Across the Apennines.

An Italian paper says: "A new trans-Apennine railway has just been open to traffic. It extends from Terni, not far from Rome, to Aquila, in the Abruzzi, on the east slope of the mountains. One of its grades rises 247 meters (805 ft.), in 13 kilometers (8 miles), passing through six tunnels of a combined length of 4,700 meters (15,420 ft.); while another stretch ascends 574 meters (1,872 ft.) in 26 kilometers (16 miles) with 16 tunnels of a total length of 5,670 meters (18,600 ft.). It finally descends to Aquila with a grade of 3.5 per cent."

The Italians seem very proud of the new line, as it has been wholly constructed by home capital and native engineers. The road is fitted throughout with rails of Bessemer steel, 12 meters (39 ft. 4½ in.) long, and the steepest grade, in its highest division, is worked with locomotives of a special construction. A similar road traversing the Apennines is now building between Florence and Faenza.

## A Large Coal Trestle.

A very large double coal-stocking trestle, 2,100 ft. long, has recently been completed at Buffalo for the Lehigh Valley Railroad. Cars are to be run upon it and their contents dumped on to an elevated platform, under which is a tunnel 1,385 ft. long. There are 275 gates in the platform, and when these are opened the coal is to be spouted into cars running through the tunnel. There is room for 96 coal dumps in the tunnel, and it is estimated that one can be loaded every five minutes. The platform has a capacity for holding 150,000 tons of coal at one time, and the company will thus be able to keep a large supply on hand to meet any emergency.

## A Large Car Shop.

The new circular passenger car shop at the Mount Clare works of the Baltimore & Ohio Railroad is said to be the largest building of the kind under one roof in this country. The diameter of the structure is 235 ft., and the walls forming the circumference are 25 ft. high and over 700 ft. long. The apex is 133 ft. high. The roof is supported by 22 wrought iron columns, each composed of two 12-in. channels and an I-beam. The columns are 75 ft. high, and are ranged in the form of a circle 120 ft. in diameter, inside of which is a 60-ft. turn-table.—*Iron Age.*

## A Dynamite Explosion.

A dispatch from Reading, Pa., Jan. 14, says: "An explosion of dynamite took place this forenoon in the Cornwall iron ore mine near Lebanon. A young man named John Pansey entered a small building, in which 150 pounds of dynamite were stored, for the purpose of taking out a few pounds of the explosive. A few seconds after his entrance an explosion occurred that shook the neighborhood as if by an earthquake. The building was blown into splinters in every direction. Pansey was found in the ruins with his clothing torn off and his body horribly burned. His left foot had been torn out of its socket and buried into the air. It has not yet been found. He died shortly afterward. Two

men were injured by the flying splinters. There is no positive theory as to the cause of the accident. Windows were broken a half mile away from the place."

We are informed that there were a number of cartridges of "Rackarock" powder in the magazine at the time of the explosion, which were already made up for use, having the exploder in them. These cartridges were found lying on the ground after the accident, just as they were when put into the magazine, the explosion having failed to set them off. This would seem to indicate that there is a high explosive which is safe to handle.

## A Triple Railroad Crossing.

Three heavy steam railroads crossing one overhead of the other at the same spot will be one of the curious freaks of railroad construction in Pittsburgh. This coincidence, as it might be termed, is formed by the lines of the Pennsylvania Railroad, the Junction Railroad and the East End Railroad all coming together in the narrowest part of a narrow valley. It is just a short distance, perhaps a few hundred yards, west of the Millville station in the Sixteenth ward. The Junction road will emerge from the hill at that point, and a tunnel will be extended under the road-bed of the Pennsylvania Railroad in order to continue the route to Lawrenceville. At the same spot a handsome iron bridge for the East End line will span the Pennsylvania tracks, enabling the new company to cross from the top of one hill to the summit of the other. This bridge will be 70 ft. above the Pennsylvania tracks and 90 feet above the Junction line. Thus, while a through passenger train may be flying eastward on the Pennsylvania road, a heavy freight train may be thundering immediately under it toward the north, and at the same moment a way accommodation train passing south in mid-air above.

The bridge to span the valley will be the handsomest and most important on the route of the East End road. It will be a substantial iron truss, 750 ft. long and having a 120 ft. span over the Pennsylvania Railroad. All the other bridges on the line, crossing streets, will be of the plate girder class.

## THE SCRAP HEAP.

## Strict Discipline.

Conductor Dan Carswell and both his brakemen have been discharged in consequence of the recent accident near Gladstone, caused by an express train not having been properly flagged or otherwise warned of the danger in advance. Had torpedoes been used the disaster would have been averted. Mr. Carswell was one of the oldest and most popular conductors on the Chicago, Burlington & Quincy road.—*Aurora (Ill.) Beacon.*

## Trainmen Must Not be Mail Carriers.

All trainmen have been instructed by the managers of the Delaware & Hudson Canal Company's railroad to refuse hereafter to carry letters of private parties unless they are inclosed in a Government envelope (a postage stamp affixed will not answer), except letters written by one agent to another on railroad business strictly.

## A Lumber Road in North Carolina.

The Wilmington (N. C.) *Review* says: "On the Wilmington, Columbia & Augusta Railroad, about 40 miles from this city, there is a station which bears the not very euphonious name of Bogue. From this station a private railroad, connecting with the main line, has been built which extends about 8 miles in the swamps and forests with which that region abounds. This private road is one of the best of its kind in the South, has a good, substantial road-bed with all the necessary culverts, is laid with good iron rails and is furnished with a first-class locomotive, all of which are made useful and important for transporting the lumber manufactured in the swamps to the main line."

## Running Through Burning Oil.

On the morning of Jan. 15 a passenger train on the Bradford, Bordell & Kinzua road when near Bradford, Pa., in a side-hill cut, ran into a river of oil which had escaped from a burst tank on the hillside, and running down the snow, had covered the bed of the railroad track for over a half-mile. The grade at that point is very steep, and the oil coursed down its bank as if it were a stream of water. There is a sharp curve close by, and before the engineer knew it his train was passing over the furnace of the engine, and immediately set the entire train on fire. The terrible heat from the burning river of oil instantly cracked and shattered every window in the car. The flames leaped in through the doors, the windows, and through the ventilators. The car wheels splashed through the burning oil, scattering it along the bottom of the cars. The only escape was to jump into the snow at the sides of the cut, which most of those on the train did. The wood-work of the engine was entirely destroyed and it was badly damaged, and the two cars were destroyed. Three passengers, all ladies, were burned to death; five trainmen and 21 passengers were burned or injured by jumping, 12 of them seriously. This is the only accident of the kind on record.

## General Railroad News.

## MEETINGS AND ANNOUNCEMENTS.

## Meetings.

Meetings will be held as follows:

*Fitchburg*, annual meeting, at the passenger station in Boston, at 11 a. m. on Jan. 20.

*Philadelphia & Reading*, adjourned meeting of stockholders, at the office in Philadelphia, Jan. 28, at noon.

## Dividends.

Dividends have been declared as follows:

*Camden & Atlantic*, 7 per cent. on the preferred stock for the year 1883, payable Feb. 1, to stockholders of record Jan. 16.

*Canadian Pacific*, 2½ per cent., semi-annual, payable Feb. 18. Transfer books close Jan. 26.

*Central Pacific*, 3 per cent., semi-annual, payable Feb. 1. Transfer books close Jan. 15.

*Cheshire*, 1½ per cent., semi-annual, on the preferred stock, payable Jan. 10.

*St. Paul & Northern Pacific* (leased to the Northern Pacific), 3 per cent., semi-annual, payable Jan. 15.

## Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

*New England Railroad Club*, regular monthly meeting, at the rooms of the Club in the Boston & Albany passenger station in Boston, Wednesday, Jan. 30, at 8 p. m. Car-wheel makers are specially invited to attend. The subject for discussion will be "The Car Wheel of the Future."

*American Institute of Mining Engineers*, annual meeting, in Cincinnati, beginning Tuesday evening, Feb. 19. Mr.



I. E. Warner, Cincinnati, O., is Chairman of the local Committee of Arrangements. A circular will be hereafter issued giving the details of the meeting.

**National Association of General Passenger & Ticket Agents.** regular semi-annual meeting, in Cincinnati, O., Tuesday, March 18.

**General Time Convention.** Spring meeting, at the Grand Hotel in Cincinnati, O., at 11 A. M., on Wednesday, April 9.

**Southern Time Convention.** Spring meeting, at No. 46 Bond street, New York, at 11 A. M., on Wednesday, April 16.

**Railway Car Accountants' Association.** annual convention, in Richmond, Va., on Tuesday, May 20.

#### Connecticut Association of Civil Engineers.

Pursuant to a call issued recently to the civil engineers and surveyors of Connecticut, a number of them assembled in Bridgeport, Jan. 15, and organized an association. A constitution was adopted, officers elected and other preliminary business transacted. The completion of the constitution and the adoption of by-laws was entrusted to a committee, which is to report at the next meeting. After the meeting those present dined together at the Sterling House.

#### American Society of Civil Engineers.

The annual meeting of this society began in the society's rooms in New York, Jan. 16, with a large attendance. Vice-President Paine occupied the chair. At the morning meeting the reports of the officers were presented, new officers elected for the ensuing year and other routine business transacted. In the evening the members attended a reception at the house of Mr. Charles Macdonald.

On Thursday the members visited the Brooklyn Bridge in the morning, making an inspection of that structure and of the engines and cable apparatus for running cars over it. In the afternoon they visited Weehawken to inspect the terminal arrangements of the West Shore road, and in the evening a reception was held at the society's rooms.

#### Transcontinental Traffic Association.

A meeting of this association was held in Chicago, Jan. 9, continuing through three days. The most important question came up on the second day, when a motion was made by the Union Pacific representative to admit the Iowa lines into the association. After some discussion this was negatived by a vote of 5 to 5. The lines voting in favor of the resolution were the Union Pacific; Central Pacific; Southern Pacific; Texas & Pacific and Galveston, Houston & San Antonio, while those opposing it were the Burlington; Northern Pacific; Atchison, Topeka & Santa Fe; Denver & Rio Grande and Atlantic & Pacific roads.

The Union Pacific then gave formal notice of its withdrawal from the association, claiming further that the 90 days required by the agreement would expire Feb. 6, as it had already given notice on Nov. 8. The Texas & Pacific also gave notice of withdrawal.

A resolution was afterward adopted to the effect that the withdrawal of any one or more roads, not exceeding three, would not release the others in the association from their obligations. In other words, as long as seven lines remained in the association the agreement would be binding upon them as originally.

On the third day only routine business was transacted, such as the issue for excursion tickets, and similar matters. Another meeting will be held shortly.

#### Utah Traffic Association.

A meeting was held in Chicago, Jan. 11, at which an agreement was made for the formation of the Utah Traffic Association, the lines in the new association being the Central Pacific, Union Pacific, Denver & Rio Grande, Burlington & Missouri River, and Atchison, Topeka & Santa Fe. The new pool will include all business going between the Missouri River and Utah points, and between Utah points and the Pacific Coast.

It was stipulated that the new agreement shall continue on the present basis from Jan. 15 to July 31, and that 90 days' notice would be required before any line could withdraw. It was also agreed that Mr. George H. Daniels, Commissioner of the Colorado Traffic Association, should act as Commissioner of the new association.

Later advices from Chicago state that dispatches had been received from General Manager Clark, of the Union Pacific, disapproving the action of the representative of that road in signing the agreement, his reason being that the proportion of business allotted to his road was too small. It is thought possible, however, that this action may be rescinded. Should Mr. Clark adhere to it, the new association will break up at once.

#### ELECTIONS AND APPOINTMENTS.

**American Society of Civil Engineers.**—At the annual meeting in New York, Jan. 16, the following officers were elected for the ensuing year: President, Don J. Whittemore; Vice-Presidents, William H. Paine and Joseph F. Davis; Secretary and Librarian, John Bogart; Treasurer, J. James R. Croes; board of directors, George S. Greene, Jr., William Metcalf, Theodore Cooper, Fred Graff and Wm. R. Hutton.

**Baltimore & Ohio Telegraph Co.**—Mr. David H. Bates has been chosen President and General Manager. He has been for some time Assistant General Manager of the Western Union Telegraph.

**Bell's Gap.**—At the annual meeting in Philadelphia, Jan. 14, the following were elected: President, Charles F. Berwind. Directors, J. H. Converse, J. N. DuBarry, Aaron Fries, Frank S. Lewis, John Reilly.

**Bloomington & Sullivan.**—The officers of this new company are: President, John Jamison; Directors, Charles R. Buckalew, J. K. Grotz, Silas McHenry, I. W. McKelvy, H. W. Palmer, J. T. Ryan; Secretary, H. J. Connor; Treasurer, David Lowenberg.

**Boston, Barre & Gardiner.**—The title of Mr. H. H. Marshall, whose appointment on this road was noted last week, is Superintendent and Traffic Manager. The office of General Freight Agent is abolished.

**Brooks Locomotive Works.**—Mr. H. B. La Rue is appointed Traveling Agent for the Brooks Locomotive Works, with authority to submit specifications and quote prices for locomotives.

**Buffalo, New York & Philadelphia.**—At the annual meeting in Philadelphia, Jan. 14, the following officers were chosen: President, G. Clinton Gardner; Directors, C. H. Clark, E. A. Rollins, B. K. Jamison, J. W. Jones, Isaac N. Seligman, E. F. Winslow, A. N. Martin, C. H. Allen, Bryce Gray, E. L. Owen, B. C. Rumsey, P. P. Pratt.

Mr. G. Clinton Gardner, the new President, is a civil engineer by profession, and was one of the party of Government engineers who surveyed the line between the United States and Canada. He was for a time a civil engineer on the Erie staff. In 1870 he was made Assistant Superintendent of Motive Power of the Pennsylvania Railroad, and, upon the retirement of Isaac Dripps, was made the Superintendent. In 1874 he was made General Superintendent of the Pennsylvania Railroad. In 1878 he was made the

Manager of the Troy & Greenfield Railroad, and in 1880 became the General Manager of the Mexican National Railway, which position he has since held.

**Burlington, Cedar Rapids & Northern.**—Mr. D. M. Wheeler has been appointed Assistant Engineer. He was recently on the St. Louis & San Francisco road.

**Connecticut Civil Engineers' Association.**—At a meeting held in Bridgeport, Conn., Jan. 15, an association was formed under this name, and the following officers were chosen: President, B. H. Hull, Bridgeport; Vice-Presidents, A. B. Hill, New Haven, and A. W. Rice, New Britain; Secretary, C. E. Chandler, Norwich; Treasurer, D. S. Brinsmade, Birmingham; Executive Committee, B. H. Hull, E. F. Angur, J. H. Bunce, C. M. Jarvis and N. J. Welton.

**Dubuque & Northwestern.**—At the annual meeting in Dubuque, Ia., last week, the old board was re-elected, as follows: George B. Burch, John Bell, J. P. Farley, Maj. Day, M. M. Walker, John Thomson, B. B. Richards, A. A. Cooper, William Ryan.

**Great Southern Dispatch.**—Mr. Henry Fink is General Manager of this new line, and Mr. A. Pope General Eastern Agent, with office at Roanoke, Va.

The agents of the line at leading points are as follows: Boston and New England States, Samuel Finlay, New England Agent Pennsylvania Railroad, No. 205 Washington street; New York, E. G. Dixon, New York Freight Agent Pennsylvania Railroad, No. 435 Broadway; Philadelphia, H. E. Whitaker, Agent, No. 25 South Fifth street; Baltimore, B. H. Griswold, General Freight Agent Western Maryland, and D. K. Houck, Soliciting Agent, No. 133 West Baltimore street; Harrisburg, Pa., James Clark, General Agent Cumberland Valley road. The office of the Contracting Agent of the line is in Harrisburg.

**Jersey Shore, Pine Creek & Buffalo.**—Mr. W. H. Herrick has been appointed Auditor, with office at Jersey Shore, Pa.

**Kansas City Union Depot.**—Mr. Charles L. Duham has been appointed Superintendent in place of James D. Carson resigned.

**Lake Superior, Willmar & Dakota.**—At a meeting held Jan. 7 the following directors were chosen: John M. Spicer, Andrew Laram, John Paulson, George H. Perkins, B. F. Jenness, Lars O. Thorpe, H. R. Gale, Willmar, Minn.; D. O'Brien, Kandiyohi, Minn.; N. P. Clarke, D. B. Searle, W. R. Gillis, St. Cloud, Minn.; Herman E. Long, W. J. Tranah, R. D. Mallet, L. H. Griesser, Duluth, Minn. Of these Messrs. Searle, Long, Tranah, Mallet and Griesser are also directors of the Duluth, North Shore & Southwestern Co. The board elected John M. Spicer President; Herman E. Long, Vice-President; Hiram E. Gale, Secretary; B. F. Jenness, Treasurer.

**Lehigh Coal & Navigation Leased Lines.**—At the annual meetings in Philadelphia, Jan. 14, directors were chosen as follows for the companies named, which are controlled by the Lehigh Coal & Navigation Co., and leased by that company to the Philadelphia & Reading, as lessee of the New Jersey Central: **Bethlehem & Belvidere.**—President, F. C. Yarnall. Directors, J. S. Harris, E. W. Clark, S. Shepherd, E. W. Clark, Jr., C. F. Howell, and C. Gibbons, Jr. **Lehigh & Lackawanna.**—President, F. C. Yarnall. Directors, E. W. Clark, J. S. Harris, F. Hazard, and Edward Lewis. **Nesquehoning Valley.**—President, J. B. Moorhead. Directors, F. R. Cope, W. G. Moorhead, W. P. Cresson, I. V. Williamson, W. C. Ludwig, George Whitney, Joseph S. Harris, E. W. Clark, P. C. Garrett, T. C. Henry, F. C. Yarnall, Edward Lewis. **Trecksow.**—President, F. C. Yarnall. Directors, J. S. Harris, E. W. Clark, G. Whitney, E. Lewis, E. Hill, C. F. Howell. **Wind Gap & Delaware.**—President, F. C. Yarnall. Directors, J. S. Harris, G. Whitney, S. Shepherd, E. Hill, E. W. Clark, Jr., C. F. Howell.

**Lehigh Valley.**—At the annual meeting in Philadelphia, Jan. 15, the following were elected: President, Harry E. Packer; Directors, Charles Hartshorne, William L. Conynghan, Ario Pardee, William A. Ingham, George B. Markie, Robert H. Sayre, James I. Blaklee, Elisha P. Wilbur, Joseph Patterson, Garrett B. Linderman, John R. Fell, Robert A. Lambertson. The board elected Charles Hartshorne Vice-President; John R. Fanshawe, Secretary; W. Charles Alderson, Treasurer; H. Stanley Goodwin, General Superintendent.

**Mexican National.**—Mr. L. W. Stevenson has been appointed General Freight and Passenger Agent dating from Jan. 1. Mr. Stevenson has been acting in that position for the past nine months.

**Missouri Pacific.**—Mr. George Dinick has been appointed Superintendent of the Transcontinental and Eastern Subdivisions of the Texas and Pacific Division.

**New Castle & Northern.**—At the annual meeting in Pittsburgh, Jan. 14, the following were chosen: President, James S. Negley; Directors, Thomas P. Simpson, H. T. Hanna, R. C. Patterson, James S. Robinson, Charles F. Calhoun, James S. Negley, Jr., Samuel K. Schwenk.

**New Castle & Salamanca.**—At the annual meeting in Pittsburgh, Jan. 14, the following were elected: President, James S. Negley. Directors, Thomas P. Simpson, W. S. Gurnee, H. K. Schwenk, New York; H. E. Collins, W. F. Ault, H. T. Hanna, J. B. Negley, Jr., J. H. McCreery, Richard Kevins, Pittsburgh; C. D. E. Clark, Jersey City; Thomas H. Wilson, Brooklyn, N. Y.

**New York City & Northern.**—At the annual meeting in New York, Jan. 14, the following directors were chosen: B. M. Galloway, J. F. Navarro, C. F. Woerishoffer, George J. Forrest, C. K. Garrison, L. May, J. P. Kennedy, R. C. Livingston, H. F. Dimock, A. F. Navarro, Charles C. Leary, M. Ward, Joseph S. Stout.

**New York, Lackawanna & Pittsburgh Line.**—Mr. James McC. Creighton, late General Freight Agent of the Pennsylvania Railroad, has been appointed General Manager of this new fast freight line.

**New York, Ontario & Western.**—At the annual meeting in New York, Jan. 16, the following directors were chosen: Edward F. Winslow, Horace Porter, Charles F. Woerishoffer, Henry Amy, Theodore Houston, Howard Mansfield, Wm. C. Gulliver, John L. Nisbet, Wm. Adams, Charles J. Canda, Thomas C. Clarke, George B. Greer, Charles Bard. This is substantially the old board.

**New York, Pittsburgh & Chicago.**—At the annual meeting in Pittsburgh, Jan. 14, the following were elected: President, James S. Negley, Pittsburgh. Directors, W. S. Gurnee, D. L. Ford, Jr., Thomas Simpson, New York; Charles Siedler, Jersey City; Thomas J. S. Robinson, Kenton, O.; Henry Cassell, Fredericktown, O.; James S. Negley, Jr., W. N. Riddle, W. E. Schmertz, D. W. C. Carroll, H. E. Collins, H. T. Hanna, Pittsburgh; J. F. Mansfield, Cannelton, Pa.

**Northern Pacific.**—Mr. H. C. Davis has been appointed Assistant General Passenger Agent, with office in St. Paul, Minn. He was recently on the St. Paul, Minneapolis & Manitoba road.

**Ohio Central.**—At Toledo, O., Jan. 7, in the United States Circuit Court, Judge Welker presiding, John E. Martin was appointed Receiver of the main line of the Ohio Central Railroad Company to Corning. Mr. Martin was already Receiver of the River Division of the road from Corning to Charleston.

**Panama.**—On Dec. 20 the following changes took place at Aspinwall in the management of this road:

J. J. Yrbe, General Superintendent in place of H. A. Woods resigned; I. Abello, Master of Transportation in place of D. G. Burt discharged; A. C. Walker, Chief Engineer; S. W. Plume, Assistant Engineer and Road-Master in place of Charles E. Spaulding, deceased; J. Shaw, Train-Dispatcher in place of J. Conney, resigned.

**Pennsylvania Railroad Leased Lines.**—At the annual meetings in Philadelphia, Jan. 14, directors were chosen as follows by the companies named below, whose roads are leased to the Pennsylvania Railroad Co.: **Bellefonte, Nittany & Lemont.**—President, J. N. DuBarry. Directors, John P. Green, L. A. Mackey, S. B. Roberts, Edmund Smith, John D. Taylor and N. P. Shortridge. **Martin's Creek & Stroudsburg.**—President, J. N. DuBarry. Directors, R. D. Barclay, John P. Green, Wm. A. Patton, G. B. Roberts, Frank Thomson, N. P. Shortridge. **Nevers.**—President, John Fichtner. Directors, J. N. DuBarry, John P. Green, Adam Hoover, Wister Morris, Alexander Knox, Francis McCoy, Henry McIntosh, G. B. Roberts, N. Parker Shortridge, Edmund Smith, Henry Welsh, J. Price Wetherill. **Philadelphia, Germantown & Chestnut Hill.**—President, Henry D. Welsh. Directors, J. N. DuBarry, John P. Green, H. H. Houston, Henry M. Phillips, N. Parker Shortridge, J. Price Wetherill. **Philadelphia & Lehigh Valley.**—President, J. N. DuBarry. Directors, John P. Green, G. B. Roberts, N. Parker Shortridge, Edmund Smith, Henry D. Welsh, J. Price Wetherill. **Ridgeway & Clearfield.**—President, J. N. DuBarry. Directors, John P. Green, G. B. Roberts, N. Parker Shortridge, Edmund Smith, Henry Welsh, J. Price Wetherill. **Susquehanna & Clearfield.**—President, J. N. DuBarry. Directors, John P. Green, Wister Morris, G. B. Roberts, N. Parker Shortridge, Edmund Smith, Henry D. Welsh.

**Perkiomen.**—At the annual meeting in Norristown, Pa., Jan. 14, the following directors were elected: James Boyd, John Slingluff, Dr. Charles T. Waage, George Graber, Jonathan F. Hillegass, Noah D. Frank, John S. Rahn, Jesse Ziegler, D. Morgan Casselberry, William H. Seipt, David H. Rader. The following officers were elected: President, A. H. Seipt; Assistant President, Col. James Boyd; Secretary Philip Super; Treasurer, Howard Boyd.

**Philadelphia & Reading.**—At the annual meeting in Philadelphia, Jan. 14, the following officers were chosen: President, George deB. Keim; managers, J. B. Lippincott, Henry Lewis, I. V. Williamson, Edward C. Knight, Joseph B. Altemus, Loring A. Robertson; Secretary, Albert Foster; Treasurer, Wm. A. Church. The changes are the election of Mr. Keim as President in place of Franklin B. Gowen; the election of Mr. Church (late Assistant Treasurer) as Treasurer in place of Mr. Samuel Bradford, who retires on account of increasing age, and the election to the board of Mr. Robertson in place of Mr. Eckley B. Cox, resigned.

**Philadelphia & Reading Leased Lines.**—At the annual meetings in Philadelphia, Jan. 14, directors were chosen as follows for the companies named below, which are leased or controlled by the Philadelphia & Reading Co.: **Allentown.**—President, G. A. Nicolls. Managers, J. B. Lippincott, Henry Lewis, I. V. Williamson, Edward C. Knight, Joseph B. Altemus, George deB. Keim. Treasurer, John Welch. Secretary, Howard Hancock. **Chester & Delaware River.**—President, G. A. Nicolls. Managers, J. B. Lippincott, Henry Lewis, Edward C. Knight, Joseph B. Altemus, George deB. Keim, William Ward. Treasurer, John Welch. Secretary, Howard Hancock. **Chestnut Hill.**—President, William W. Colket. Directors, William M. Colket, Joseph Patterson, William L. Schaeffer, F. B. Gowen, E. H. Weil, W. S. Wilson, Lewis Elkin, C. Howard Colket, H. A. Smith, Joseph B. Townsend, J. Sergeant Price, Charles C. Slifer. Secretary and Treasurer, Wm. W. Stephens. **Danville & Shamokin.**—President, George deB. Keim. Managers, J. B. Lippincott, Henry Lewis, I. V. Williamson, Edward C. Knight, Joseph B. Altemus. Treasurer, John Welch. Secretary, Howard Hancock. **East Mahanoy.**—Same as the Allentown Co. **North Pennsylvania.**—President, Franklin A. Comly. Directors, John Jordan, Jr., William C. Ludwig, Edward C. Knight, Alfred Hunt, Ario Pardee, James H. Stevenson, Richard J. Dobbins, Charles A. Sparks, Edwin H. Fittler, Thomas P. Stotesbury, Thomas Cochran, Thomas McKean. **Northeast Pennsylvania.**—President, Joshua Comly. Directors, John Jordan, Jr., William C. Ludwig, Edward C. Knight, Alfred Hunt, James H. Stevenson, Richard J. Dobbins, Charles A. Sparks, Franklin A. Comly, Thomas P. Stotesbury, G. J. Mitchell, Isaac Warner, Jr., I. Newton Evans. **Reading & Columbia.**—President, G. A. Nicolls. Directors, J. B. Lippincott, Henry Lewis, I. V. Williamson, George deB. Keim, J. B. Altemus, E. C. Knight, J. N. Hutchinson, Adam E. Royer, Thomas Baumgardner, William Latimer Small, Paris Haldeman, Benjamin F. Hiestand; Secretary, Howard Hancock; Treasurer, John Welch. **Shamokin, Sunbury & Lewisburg.**—President, S. B. Wolverson; Directors, A. H. Dill, John C. Smith, H. E. Davis, Levi Rooke, Ira T. Clement, L. H. Kase, John Haas. Secretary, Howard Hancock. Treasurer, John Welch.

**Pittsburgh East End.**—At the annual meeting in Pittsburgh, Jan. 14, the following officers were elected: President, W. S. Bissell. Directors, Joshua Rhodes, James H. Lindsay, Nathan M. McDowell, Wilson McCandless, John D. Scully, George I. Whitney, Wm. Flinn, Wm. L. Chalfant.

**Pittsburgh & Lake Erie.**—At the annual meeting in Pittsburgh, Jan. 14, the following were elected: President, John Newell; Directors, David Hostetter, Jacob Henrich, Jas. J. Bennett, J. H. Devereux, Herbert Dupuy, M. W. Watson, Ralph Bagaley, A. E. W. Painter, James M. Schoonmaker, John Reeves, J. H. Reeves, D. Lett Wilson. Changes made are the election of Mr. Newell as President in place of Dr. Henrich, who remains a director, and the substitution of J. H. Reeves for J. M. Bailey.

**Pittsburgh, McKeesport & Foughiogheny.**—At the annual meeting in Pittsburgh, Jan. 14, the following were chosen: President, W. C. Quincy; Directors, Wm. H. Vanderbilt, Cornelius Vanderbilt, James Tillinghast, John Newell, J. H. Devereux, David Hostetter, James J. Bennett, Henry Hice, M. W. Watson.

**Pittsburgh & Neville Island.**—At the annual meeting in Pittsburgh, Jan. 14, the following were chosen: President, John M. Phillips. Directors, J. R. Pittcock, George H. Cole, W. Vankirk, Samuel Dickson, John F. Dravo, Henry Meyer, J. H. McCreery, H. T. Morris.

**Pittsburgh & Western.**—At the annual meeting in Pittsburgh, Pa., the following were elected: President, James Callery, Allegheny, Pa.; Directors, M. K. Moorhead, J. H. McKelvey, A. M. Marshall, Pittsburgh; John W. Chalfant,



John E. Downing, Jacob Painter, Jr., Henry W. Oliver, Jr., Wm. Semple, Allegheny, Pa.; P. F. Kribbs, Knox, Pa.; Charles W. Macey, Franklin, Pa.; Solon Humphreys, John T. Terry, New York.

**Pittsburgh, Youngstown & Chicago.**—At the annual meeting in Pittsburgh, Jan. 14, the following were chosen: C. H. Andrews, William J. Hitchcock, William McKim, Lucius E. Cochran, William L. Bissett, William M. Short, J. H. Wade, William Cushman, William B. Rogers, J. A. Caughey, William Miller, Robert Garrett, John H. McCree.

**Portland & Ogdensburg.**—At the annual meeting in Portland, Me., Jan. 15, the following directors were chosen: J. Eastman, Conway, N. H.; Samuel J. Anderson, J. P. Baxter, George F. Emery, Francis Fessenden, Horatio N. Jose, W. F. Milliken, R. M. Richardson, J. S. Ricker, Samuel Waterhouse, Portland.

**St. Joseph & Western.**—The board of directors has been reorganized by agreement, and is now as follows: Frederick L. Ames, Eliza Atkins, Ezra H. Baker, Elias C. Benedict, F. Gordon Dexter, Sidney Dillon, James G. Harris, Winslow Judson, Henry McFarland, Oliver W. Mink, James C. Parrish, Wm. Strauss, Francis W. Williams. Eight of these directors are in the Union Pacific interest; the remaining five—Messrs. Benedict, Judson, Parrish, Strauss and Williams—represent the outside holders of stock and bonds.

**St. Louis, Sturgis & Battle Creek.**—The officers of this new company are: President, E. C. Nichols; Vice-President, A. C. Waterman; Secretary, George E. Howes; Treasurer, Nelson Eldred. Office at Battle Creek, Michigan.

**Savannah, Florida & Western.**—Mr. James L. Taylor, General Passenger Agent of this road, announces that the circular of March 12, 1883, announcing the appointment of Messrs. Leve & Alden as salaried Tourist Agents of this company is rescinded, to take effect Jan. 31, in consequence of the withdrawal of Messrs. Leve & Alden from the agreement with this company under which said appointment was made. In terminating their connection as agents of this company in the capacity stated, it is due Messrs. Leve & Alden to state that the withdrawal from the agreement is entirely in accordance with its terms, and is of their own volition.

**Silver Lake.**—At the annual meeting in Perry, N. Y., Jan. 8, the following directors were chosen: S. L. Chapin, Alpheus S. Simmons, Isaac C. Rodgers, Randal W. Brigham, Luther Chapin, David Andrus, Henry N. Payne, Rufus H. Stedman, Richard T. Tuttle, James Wyckoff, Austin W. Toan, Milo H. Olin, Jay C. Benedict.

**Texas & St. Louis.**—The United States Circuit Court has appointed Mr. W. R. Woodard Receiver of this road. Mr. Woodard was recently appointed General Manager of the road.

**Tidewater Pipe Line.**—At the annual meeting in Titusville, Pa., Jan. 16, the following officers were chosen: President, Byron D. Benson; Managers, Andrew N. Perrin, H. C. Fahnestock, Robert E. Hopkins, George de B. Keim; Secretary, Andrew N. Perrin; Treasurer, Robert E. Hopkins.

**Western Association of Civil Engineers.**—At the annual meeting of this association in Chicago, Jan. 8, the following officers were chosen for the ensuing year: President, DeWitt C. Cregier; First Vice-President, S. S. Greeley; Second Vice-President, Isham Randolph; Secretary, L. P. Morehouse; Treasurer, Charles Fitz Simons; Librarian, G. A. M. Lilgen- cranz.

**Williamsport & Clearfield.**—At the annual meeting in Philadelphia, Jan. 14, the following were elected: President, C. W. Seidel, Directors, G. T. Seidel, Charles L. Riley, Henry Croskey, H. M. Albertson, Richard W. Clay, Alfred H. Williams, Morris R. King, W. B. Hornblower, Charles D. Ingersoll. Secretary and Treasurer, C. D. Ingersoll.

**Woodstock.**—At the annual meeting in Woodstock, Vt., last week, the following directors were chosen: Frederick Billings, Albert G. Dewey, S. S. Thompson, Lewis Pratt, F. N. Billings, Justin F. Mackenzie, William C. Raymond. The directors elected these officers: President, Frederick Billings; Vice-President, Justin F. Mackenzie; Clerk, Charles M. Marsh; Superintendent and Treasurer, James G. Porter; Engineer, Hosea Doten.

**Youghiogheny Northern.**—At the annual meeting in Pittsburgh, Jan. 14, the following directors were chosen: Thomas Mellon, H. C. Frick, E. M. Fergusson, Walton Fergusson, John Walker, Thomas M. Carnegie, George Lauder. The board organized with the following officers: Thomas Mellon, President; A. M. Thorne, Treasurer; and A. F. McCook, Secretary.

#### PERSONAL.

—Mr. S. A. Wedeny has resigned his position as Paymaster of the Cincinnati, Hamilton & Dayton road.

—Mr. J. M. Eddy, recently Superintendent of the Texas & Pacific road, is now engaged in building the proposed belt railroad at Omaha.

—Mr. Pliny Hoagland, an old and well known citizen of Fort Wayne, Ind., died in that city Jan. 11. He was for many years a director of the Pittsburgh, Fort Wayne & Chicago and the Grand Rapids & Indiana companies.

—Mr. Strickland Kneass, well-known as a civil engineer, and for many years connected with the Pennsylvania Railroad, died at his residence in Philadelphia, Jan. 14, after an illness lasting nearly a year. A more extended notice of his life will be found elsewhere.

—The address of Mr. James M. Boon, who recently resigned his position as Assistant Superintendent of Motive Power and Machinery on the Chicago & Northwestern road, is for the present at No. 57 Park avenue, Chicago. Mr. Boon has as yet formed no plans for the future.

—Mr. Henry B. Payne, the new Senator-elect from Ohio, is largely interested in railroad property. He is a director of the Lake Shore & Michigan Southern, and of the Valley Railroad Co. He is also, it is said, largely interested in the Standard Oil Co., of which his son is an officer.

—An exchange says that 25 years ago Mr. Jerome A. Fillmore, now General Superintendent of the Central Pacific Railroad, was a brakeman on the Delaware, Lackawanna & Western road at \$25 a month, running between Scranton and Great Bend, which was then the terminus of the road.

—Mr. William Baldwin, for many years a railroad contractor, died at his home in Connellsville, Pa., Jan. 7. He was a native of Worcester, Mass., but had lived in Pennsylvania for a long time. He had heavy contracts on the Pennsylvania, the Pittsburgh & Connellsville and other roads. He was a director of the Pittsburgh & Connellsville Co. at the time of his death.

—Mr. Charles L. Condit, who has visited many of our readers while engaged in the service of the Railroad Gazette, and, we are sure, commands the respect and good-

will of all who have learned to know him, has become the publisher of *Science*, a weekly journal, in which many of the best scientific men of the country are interested. His office is at No. 4 Bond street, New York.

—Mr. L. H. Shattuck recently resigned his position as Superintendent of the Tioga Railroad, after holding that office for nearly 30 years. Last week he held a reception at the Seymour House in Blossburg, Pa., at which numerous speeches were made, and Mr. Henry Hollands in a few well-chosen remarks presented Mr. Shattuck with a fine gold watch and chain, and Mrs. Shattuck with a diamond bar pin costing \$350, as testimonials of esteem from the officers and employees of the Tioga road.

—Mr. Charles LeGrand McAlpine died Jan. 11, at his residence in New York, aged 56 years. He was born in New York City, and had been for many years a civil engineer. He was for a long time Engineer on the New York State canals, and had charge of the building of the Chenango Valley road and of other works. His last work was on the Albemarle & Raleigh road in North Carolina. He was a brother of Mr. Wm. J. McAlpine, the well-known engineer. Mr. McAlpine had been for many years a member of the American Society of Civil Engineers.

—The directors of the Norwich & Worcester Railroad Co. recently passed a vote of congratulation to Col. G. L. Perkins, the Treasurer. Col. Perkins is now in his ninety-sixth year, but is still an active officer. A statement by the Secretary shows that he has paid as Treasurer 564 monthly pay-rolls and 94 semi-annual dividends, and never failed to have the money ready on pay-day. Col. Perkins is without doubt the oldest railroad officer in the country. He was a man almost in middle age when the first railroad was built, and almost the entire railroad system of the United States has grown up during his term of office.

—Mr. George DeB. Keim, the new President of the Philadelphia & Reading Railroad Co., is a son of the late Gen. George M. Keim, and was born in Reading, Pa., in 1832. He received a collegiate education at Georgetown, D.C., and at Dickinson College, Carlisle, graduating from the latter institution in 1849. He studied law in the office of Charles Davis, Esq., and was admitted to the bar in 1852. He practiced his profession in Reading for about three years, after which he went to Pottsville, where he soon secured an extensive practice as counsel for many of the leading coal operators. In 1868 Mr. Keim was chosen Solicitor of the Philadelphia & Reading Railroad Co., his thorough knowledge of the various problems connected with the coal lands controlled by that corporation giving him a peculiar fitness for the position. Three years afterward he became General Solicitor and removed to Philadelphia, and a few years ago he was chosen Vice-President, the position he now leaves to become President of the company.

—Mr. John Griffen, Superintendent of the Phoenix Iron Co., died at his residence in Phoenixville, Pa., Jan. 14, aged 72 years. Mr. Griffen was born in Mamaroneck, Westchester County, N. Y., in the year 1812. In less than a year after his birth his father died. After finishing his education he entered the mercantile establishment of an uncle in the city of New York, and remained with him until his majority. In 1843 he came to Pennsylvania and was employed as bookkeeper in the iron works and nail factory of R. C. Nichols & Co. of Norristown. Here he developed his talent for engineering and mechanical pursuits, which subsequently made him so celebrated as an engineer, inventor and iron master. He erected the iron works of Moore & Hooven, of the same place, and while so engaged he conceived and successfully applied a novel method of using the waste heat from the heating and puddling furnaces for generating the steam necessary to run the engines. He was commissioned in 1847 to construct the works of Reeves, Abbott & Co., at Safe Harbor, Lancaster County, Pa., his duties being mainly of an executive character. After the completion of the work he continued in their employ as Superintendent until 1856, during which time he introduced the governor for controlling the speed of steam engines used in rolling iron. The well-known invention for making wrought iron cannon was also invented by him. Many hundreds of these guns, made by the Phoenix Iron Co. and known as the "Griffen Gun," were used during the rebellion. He went to Phoenixville from Safe Harbor in 1856 to take charge of the iron works there, and remained until 1863. His next invention was for rolling the large wrought-iron beams used in buildings on the small rollers then in use, for which he obtained a patent in 1857, and which is now in successful operation. For years he rolled the largest beams rolled in the world. In 1862 he engaged to erect the Buffalo Union Iron Works for a firm engaged in the general iron manufacture and in making iron beams. In 1867 he accepted the position of Civil and Mechanical Engineer with the Phoenixville Iron Company, and eighteen months later he was again placed in charge of the works at Phoenix as General Superintendent, which position he held until he died. In 1873-4 he erected the new and large works for the company which are now in full operation. The general plan of the mill building and machinery was his own arrangement. He was married in 1837 to Esther, daughter of Reuben Liggett of New York, by whom he had five children, of whom only one survives. His wife died in 1849; two years later he married her sister, by whom he had five children, four of whom are living in Phoenixville. Mr. Griffen in 1857 was elected Burgess of Phoenixville, subsequently a member of the school board, when it was through his exertions that the free school building was erected. He was one of the directors of the Phoenix Iron Co., and was also a member of the firm of Clark, Reeves & Co., the celebrated bridge-builders.

#### TRAFFIC AND EARNINGS.

##### Grain Movement.

For the week ending Jan. 5 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the last 11 years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874.....	3,027,412	.....	1,890,186
1875.....	1,611,371	.....	1,634,316
1876.....	1,730,948	946,632	1,641,770
1877.....	2,361,038	908,682	1,546,128
1878.....	1,452,608	1,112,056	2,764,984
1879.....	2,936,586	1,183,148	2,147,844
1880.....	3,867,056	1,370,697	3,691,855
1881.....	2,987,669	2,036,483	2,053,554
1882.....	2,719,039	1,515,064	1,280,185
1883.....	4,363,245	2,208,322	3,228,263
1884.....	4,176,789	1,657,216	1,374,061

Thus the receipts of the Northwestern markets for the week, though a little less than in the corresponding week of last year were much larger than in any previous year. They were, however, 311,000 bushels less than in the previous week of this winter. The shipments of these markets were 641,000 bushels less than last year and 379,000 less than in 1881, but more than in any other year. They were 50,000 bushels less than in the previous week and the smallest

since March, 1882. No shipments down the Mississippi are reported.

The Atlantic receipts for the week are smaller than in the corresponding week of any previous year since 1874 except in 1882, when a snow blockade interrupted them, and were 1,854,000 bushels (54 per cent.) less than last year, 172,000 less than in the previous week of this winter, and the smallest since the first week of April, 1882.

The Chicago receipts kept up well in the week under consideration, amounting to 55 per cent. of the total Northwestern receipts, and the falling off from the previous week was chiefly at St. Louis, whose receipts were the smallest since October.

The falling off in the Atlantic receipts was chiefly at Boston, Philadelphia, Baltimore and New Orleans, but they were very small everywhere.

San Francisco exports for the six months of the California crop year from July 1 to Dec. 31 were as follows, flour in barrels and grain in bushels, flour being reduced to wheat in the totals:

	1883.	1882.	Inc. or Dec.	P. c.
Flour.....	670,472	549,151	I. 121,321	22.3
Wheat.....	12,274,275	15,249,375	D. 3,015,100	19.8
Total bushels.....	15,566,640	17,795,130	D. 2,408,490	13.4

Shipments of California barley by sea for the six months of the crop year from July 1 to Dec. 31 were 122,973 cants, a decrease of 44,532 cants, or 26.6 per cent., as compared with the corresponding period in 1882. Shipments of barley by rail for the five months from July 1 to Nov. 30, 1883, were 27,722 cants.

#### Railroad Earnings.

Earnings for various periods are reported as follows:

Year ending Dec. 31:	1883.	1882.	Inc. or Dec.	P. c.
Char., Col. & Ag.	\$828,356	\$758,557	I. 69,799	9.2
Ches. & Ohio.....	3,934,934	3,334,977	I. 599,957	17.7
C. & N. O. & Tex. P.	2,572,809	2,573,027	D. 218	.....
C. W. & Balt.....	1,857,878	1,797,005	I. 60,873	3.4
C. & Akron & Col.	523,802	505,957	I. 17,845	3.5
Det., Lan. & No.	1,590,216	1,590,438	D. 222	.....
E. & B. S.....	714,268	529,319	I. 184,949	35.0
Flint & Pere M.....	2,543,815	2,162,952	I. 380,863	17.6
Grand Trunk.....	17,742,319	16,899,424	I. 842,895	5.0
G. B. W. & St. P.	412,244	393,367	I. 18,877	4.6
Ill. C. & Ill. lines.	6,712,489	6,959,781	D. 247,292	3.5
Iowa lines.....	2,015,332	1,945,532	I. 69,800	3.6
Southern Div.....	4,359,993	3,848,536	I. 511,457	13.2
K. C., Ft. S. & G.	2,011,909	1,753,943	I. 257,966	14.7
Little R. & Ft. S.	555,761	539,129	I. 16,632	3.1
L. R., M. R. & T.	413,631	314,473	I. 99,158	31.5
Northern Pacific.	10,330,574	6,965,999	I. 3,364,575	48.1
Pitts. & Lake E.	1,402,764	1,285,748	I. 117,016	10.8
Rich. & Danville.	3,845,152	3,663,432	I. 181,720	4.9
St. L. A. & T. H.:				
Main Line.....	1,453,240	1,456,031	D. 2,791	0.2
Belleville Line.	875,490	875,490	D. 49,427	5.6
Shenandoah Vy.	85,919	459,937	I. 373,982	85.6
Vol. C. & St. L.	1,100,631	859,553	I. 241,078	28.0
Va. Midland.....	1,678,755	1,497,176	I. 181,579	12.1
Western N. C.....	382,037	250,791	I. 131,246	52.5
Eleven months ending Nov. 30:				
B. & O. R. & No.	\$2,585,564	\$2,554,620	I. 30,944	1.2
Net earnings.....	800,949	876,750	D. 75,801	8.5
Des M. & Ft. D.	310,219	318,758	D. 8,539	2.7
Net earnings.....	83,643	93,131	D. 9,488	10.2
Louisville & N.	12,897,324	11,759,923	I. 1,137,401	9.6
Net earnings.....	3,245,113	4,491,835	D. 1,246,722	28.8
Minn. & St. L.	1,501,801	1,401,101	I. 100,700	7.2
N. Y. Sus. & W.	929,830	655,915	I. 273,915	41.9
Oregon & Cal.....	956,053	.....	.....	.....
Net earnings.....	289,607	.....	.....	.....
Shenandoah Vy.	791,036	413,007	I. 378,049	91.5
Net earnings.....	183,147	2,913	I. 180,234	22.3
Utah Central.....	1,081,267	1,301,418	D. 220,151	20.3
Net earnings.....	559,139	805,336	D. 246,197	30.6
Month of November:				
East T. Va. & G.	\$409,095	\$330,736	I. 129,359	29.3
Net earnings.....	183,816	126,308	I. 57,508	29.3
Louisville & N.	1,307,394	1,200,902	I. 106,492	8.8
Net earnings.....	535,629	408,217	I. 127,412	28.8
Minn. & St. L.	176,053	167,743	I. 8,310	5.0
N. Y. Sus. & W.	86,782	71,322	I. 15,460	21.8
Net earnings.....	36,451	23,311	I. 13,140	56.4
Oregon & Cal.....	114,174	.....	.....	.....
Net earnings.....	52,458	.....	.....	.....
Rome, W. & O.	153,174	155,355	D. 2,181	1.4
Net earnings.....	57,076	47,059	I. 10,017	21.3
Utah Central.....	107,267	136,204	D. 28,937	21.3
Net earnings.....	56,315	79,507	D. 23,192	29.0
Month of December:				
Bos. H. T. & W.	\$32,542	\$35,457	I. 2,915	9.0
Char., Col. & A.	77,923	80,851	D. 2,928	3.6
Ches. & Ohio.....	3,24,527	253,355	I. 71,172	28.1
Chi. & West M.....	104,118	125,477	D. 21,359	16.3
C. & N. O. & T. P.	208,762	214,705	D. 5,943	2.8
Det., Lan. & No.	174,024	174,024	D. 21,355	18.0
Cleves. A. & Col.	33,816	39,678	D. 5,862	17.3
Col. & Greenville.	65,570	97,537	D. 31,967	32.6
Det., Lan. & No.	106,702	121,510	D. 14,808	12.1
Eliz. L. & B. S.	52,695	47,090	I. 5,605	11.9
Flint & Pere M.....	199,635	206,171	D. 6,536	3.2
Grand Trunk.....	1,335,784	1,480,202	D. 144,418	9.8
G. B. W. & St. P.	36,127	37,978	D. 1,851	4.9
Ill. C. & Ill. lines.	579,900	572,761	I. 7,139	1.2
Iowa lines.....	158,100	156,880	I. 1,220	0.8
Southern Div.....	510,600	603,596	D. 92,996	15.4
K. C., Ft. S. & G.	207,396	172,179	I. 35,217	20.4
L. R. & Ft. S.	65,357	83,591	D. 18,234	21.7
L. R., M. R. & T.	52,143	49,701	I. 2,442	4.9
Mobile & Ohio.....	290,029	306,723	D. 16,694	5.4
Net earnings.....	147,414	139,541	I. 7,873	5.8
Northern Pacific.	1,166,652	531,068	I. 635,584	119.7
Rich. & Danville.	334,640	322,443	I. 12,197	3.8
St. L. A. & T. H.:				
Main Line.....	126,463	124,631	I. 1,832	1.5
Belleville Line.	72,195	75,355	D. 3,160	4.2
St. L., Ft. S. & W.	39,913	.....	.....	.....
Shenandoah Vy.	62,863	49,930	I. 12,933	33.9
T. C. & St. L.	103,335	79,634	I. 23,701	29.4
Va. Midland.....	118,443	115,824	I. 2,619	2.2
Western N. C.....	33,784	26,044	I. 7,740	23.3
First week in January:				
Bur., C. R. & No.	\$35,802	\$33,306	D. 2,496	33.0
Chi. & Alton.....	147,959	150,683	D. 2,724	1.8
Chi. & East Ill.	2,214	20,350	D. 6,936	23.0
Chi. & Gd. Tr.	92,032	44,587	I. 12,555	27.9
Chi., Mil. & St. P.	314,000	342,900	D. 28,900	8.4
C. St. P. M. & O.	58,200	75,900	D. 17,700	21.0
Cle., C. C. & Ind.	29,000	39,465	D. 10,465	24.2
Denver & B. G.	101,800	96,400	I. 5,400	5.6
Ill. Central.....	189,400	227,039	D. 37,639	20.7
Long Island.....	34,433	.....	.....	.....



Clearfield, Snow Shoe, Broad Top, Mountain, Westmoreland, Monongahela, Connellsville and Pittsburgh districts in Pennsylvania, and the Cumberland District in Maryland. The distinction between semi-bituminous and bituminous coals heretofore made in these columns, while some reasons exist for it, is of a nature so difficult to define closely that it has been concluded to drop it, and to include all these reports together.

The coal tonnage of the Pennsylvania Railroad for the week ending Jan. 5 was as follows:

	Coal.	Coke.	Total.
Line of road.....	111,161	43,342	154,503
From other lines.....	34,007	10,248	44,255
Total.....	145,168	53,590	198,758

This tonnage is for the main line between Philadelphia and Pittsburgh and the branches in Pennsylvania. It does not include the New Jersey lines or the Philadelphia & Erie Division.

For the year ending Dec. 31 the shipments of coal from the mines on the Monongahela River above Pittsburgh, as shown by the report of the Monongahela Navigation Co., were as follows, in bushels:

	1883.	1882.	Inc. or Dec.	P. c.
Coal.....	108,487,800	101,454,700	7,033,100	7.0
Coke.....	3,967,589	4,733,000	D. 820,011	17.4
Total.....	112,395,389	106,187,700	6,207,689	5.9

The tolls received by the Navigation Co. on this coal amounted in 1883 to \$190,598.22, an average charge of 0.170 cent per bushel, against 0.169 cent in 1882.

The coal tonnage of the Pennsylvania Railroad Division for the Pennsylvania Railroad for the year ending with December was as follows:

	1883.			1882.
	Line of road.	From other lines.	Totals.	Total.
Anthracite ...	683,144	1,838,222	2,521,366	1,826,854
Semi-bituminous ...	3,003,327	617,861	3,711,188	3,511,368
Bituminous ...	2,958,454	6,886	2,965,340	2,930,137
Coke ...	2,548,644	564,763	3,113,387	2,888,787

Total increase last year, 1,177,135 tons, or 10.6 per cent. The Pennsylvania Railroad coal traffic is only a part of its total business, and it is not usually referred to as a coal road, yet its coal tonnage last year was greater than that of any of the distinctively coal roads.

Cumberland coal tonnage for the week ending Jan. 12 was 27,674 tons. The total tonnage this year to Jan. 12 was 50,061 tons, a decrease, as compared with last year, of 24,148 tons, or 32.7 per cent.

San Francisco coal receipts for the year ending Dec. 31 were: 1883, 886,600; 1882, 843,500; increase, 43,100 tons, or 5.1 per cent. Of the receipts last year 438,100 tons were Pacific coast coals, 268,300 tons English, 158,500 tons Australian and the balance anthracite and Cumberland coal.

Coal shipment over the Columbia & Puget Sound road, and by sea from Seattle, Wash. Ter., for the year ending Dec. 31, were: 1883, 213,499; 1882, 151,418; increase, 62,081 tons, or 41 per cent. Last year's shipments were the heaviest ever made.

#### Cotton.

Cotton movement for the week ending Jan. 11 is reported as follows, in bales:

	1881.	1883.	Inc. or Dec.	P. c.
Receipts.....	35,575	49,420	D. 13,845	60.3
Shipments.....	51,581	97,977	D. 46,396	45.3
Stock, Jan. 11.....	389,898	380,248	I. 9,650	2.5
Receipts.....	90,245	175,382	D. 85,137	48.6
Exports.....	166,510	163,694	I. 2,816	1.7
Stock, Jan. 11.....	1,190,663	930,687	I. 259,976	27.9

The total receipts at interior markets for the cotton year (from Sept. 1) to Jan. 11 were 2,200,042 bales, a decrease of 305,776 bales, or 12.2 per cent. The total receipt receipts for the cotton year to Jan. 11 were 3,647,207 bales, a decrease of 214,634 bales, or 5.6 per cent.

#### Chicago-Ohio River Pool.

Representatives of the roads interested in this pool met at Indianapolis Jan. 8 and decided to continue the agreement, the expense of maintaining the pool being divided among the companies on the basis of business awarded each line. At a meeting of passenger agents of the pool lines it was determined that the General Manager should purchase all tickets now in the hands of scalpers and that each line should redeem its tickets at face value.

#### Transfer of National Dispatch.

The cars of the National Dispatch fast freight line which heretofore have reached Chicago over the Michigan Central now run over the Chicago & Grand Trunk.

#### The Decatur, Ill., Pool.

This pool was reorganized Dec. 8; 36 per cent. of the traffic goes to the Wabash, 20 to the Illinois Central, 19 to the Indiana, Bloomington & Western, 15 to the Peoria, Decatur & Evansville and 10 per cent. to the Illinois Midland.

#### The Kansas City Passenger Agreement.

At a meeting held in Chicago Jan. 10, the Chicago, Burlington & Quincy and the Hannibal & St. Joseph gave notice of withdrawal from the Kansas City passenger agreement, and refused to sign a new agreement. The reasons given for this action is that other lines have refused to give up the payment of commissions to outside parties, and have assumed the right to make rates at their discretion, without consulting the other roads which are parties to the agreement.

#### Charges on Grain at Chicago.

The general freight agents of the Wabash, the Chicago & Alton, the Burlington, the Chicago & Eastern Illinois, the Rock Island, the St. Paul, the Northwestern, and the Illinois Central roads have issued the following notice to grain-dealers and shippers:

"On and after Jan. 10, 1884, the following rules will govern regarding charges on grain received at Chicago:

"Grain in bulk consigned to Chicago, local, will be immediately unloaded in elevators, after arrival and inspection, unless way-billed for track delivery, or held out by consignees.

"Grain held out and afterward ordered to connecting lines, private tracks, or to elevators, will be subject to a charge of \$3 per car for switching.

"Grain billed for track delivery and afterward ordered to elevators, to private tracks, or to connecting lines, will be subject to a charge of \$3 per car for switching.

"Cars to be unloaded on team track must be unloaded within 48 hours after being placed in position to unload.

"Cars reloaded to other lines, private tracks, or to elevators, must be so ordered within 36 hours after inspection.

"Delay beyond these hours will subject cars to a charge for demurrage of \$3 a day, or any part of a day thereafter.

"Grain destined to points beyond Chicago, and so billed, will be delivered to connecting line free of switching charges,

but if held for inspection a charge of \$2 per car will be made.

"For switching to private tracks, warehouses, or elevators, not on the tracks of receiving line, additional charges will be made according to location."

#### The Foreign Steamship Traffic.

John E. Moore, the landing agent at Castle Garden, has made the following report of the total number of passengers landed at New York during 1883 by the several lines of steamships. The following is a summary:

Line.	Where from.	Cabin	Steerage.	No. of trips.
Cunard.....	Liverpool.....	9,153	11,647	52
Guion.....	Liverpool.....	8,019	18,397	58
N. G. Lloyd.....	Bremen.....	7,228	96,474	98
White Star.....	Liverpool.....	5,842	27,994	58
Imman.....	Liverpool.....	3,762	22,750	46
Anchor.....	Glasgow.....	3,715	18,039	52
Hamburg.....	Hamburg.....	3,706	13,057	74
Anchor.....	Liverpool.....	2,695	5,506	14
National.....	Liverpool.....	2,229	20,489	45
State.....	Glasgow.....	2,215	11,916	51
Red Star.....	Antwerp.....	2,149	24,170	52
Monarch.....	London.....	1,116	6,621	27
National.....	London.....	819	4,002	34
Thingvall.....	Copenhagen.....	596	10,157	22
Baltimore.....	Baltimore.....	298	3,596	12
Bordeaux.....	Bordeaux.....	67	3,440	12
Anchor.....	Mediterranean.....	58	10,337	36
Miscellaneous.....		1,034	45,190	172
Total.....		58,596	338,267	972
Total, 1882.....		57,947	455,450	1,021

The average number of passengers by each steamship in 1882 was 501, and for 1883, 459.

#### Sault Ste. Marie Canal.

The following statement is made of the business passing through the Sault Ste. Marie Canal during the year ending Dec. 31:

	1883.	1882.	I. c. or Dec.	P. c.
No. of vessels passed.....	4,315	4,774	D.	450 0.6
Passengers carried by same.....	39,140	29,256	I.	9,884 33.7
Tons freight.....	2,267,105	2,020,521	I.	246,584 11.7
Av. tonnage per vessel.....	525	448	I.	77 17.2

The chief items of freight carried by the vessels passing through the canal last year were 791,732 tons iron ore; 714,444 tons coal; 87,181,000 ft. lumber; 6,677,025 bushels grain; 887,931 barrels of flour; 109,910 tons manufactured iron; 70,898 barrels of salt; 31,024 tons of copper. Iron ore was the only important item of freight which showed a decrease.

#### Great Southern Dispatch.

This new co-operative fast freight line, as already noted, has been formed by the Pennsylvania, the Cumberland Valley, the Western Maryland, the Shenandoah Valley, the Norfolk & Western and the East Tennessee, Virginia & Georgia roads. The following circular in relation to it has been issued:

"Opening for traffic on Jan. 1, 1884, with an equipment especially constructed and allotted for its service—increased as transportation demands arise by the use of the regular cars of the companies at interest—and overcoming all difficulties and delays incident to the difference of gauge between northern and southern railway systems by a steam car hoist of ample capacity, erected for this line's use, at Roanoke, Va., it proposes to perform its duties as a fast freight line in a manner that will warrant a trial of its merits and a continuance of a patronage once given it.

"Supplementing to the South and Southwest the existing lines (part rail and part water) from and to the northern seaport cities, and opening channels of transportation not afforded by other all-rail routes, it provides, between said cities and all interior points in New England, New York, Pennsylvania and Maryland and to the south and southwest of Bristol, Tenn., a new all-rail freight route, giving through rates and through bills of lading to destination, avoiding marine insurance, transfers and delays, and offering to manufacturers, producers and all shippers opportunities for direct transportation not hitherto enjoyed.

"By the opening of this line the large areas of territory penetrated by each of the railways forming it are given through rate facilities from local stations, and valuable shipping information, not before obtainable.

"Application for rates and transportation made through the agents of either of the railways named, or by direct inquiry of the agents as per directory, will be promptly answered."

The shipping points for the line are: In Boston, at the New York & New England freight station; for New England generally, at all stations on the New York & New England, the Worcester, Nashua & Rochester and the New York, New Haven & Hartford roads; in New York city, at Piers 1 and 39 and foot of Thirty-fifth street, North River; in Philadelphia, at Broad and Carpenter streets, and at Southwark station; in Baltimore, at the stations of the Western Maryland road; in Harrisburg, Pa., at the Cumberland Valley station, and generally at all local stations of the Pennsylvania, the Cumberland Valley and the Western Maryland roads.

#### Through Passengers Between Chicago and New York.

A statement submitted by Commissioner Fink makes the following exhibit of the number of passengers carried between Chicago and New York during September and October, and also shows the percentage to which the various roads are entitled and the percentage they actually carried.

From New York to Chicago—3,388 first-class and 508 second-class passengers in September, and 2,626 first-class and 377 second-class in October.

From Chicago to New York—2,450 first-class and 1,023 second-class in September, and 2,349 first-class and 996 second-class in October.

The allotted percentages on west-bound business are as follows: New York Central, 32 per cent.; Erie, 27; Pennsylvania, 31; Baltimore & Ohio, 10. The percentages actually carried were as follows:

	September.	October.
New York Central.....	33.21	34.78
Erie.....	20.70	19.97
Pennsylvania.....	38.56	41.71
Baltimore & Ohio.....	7.53	3.54

The allotted percentages on east-bound business are as follows: Lake Shore, 22; Michigan Central, 24; Fort Wayne, 38; Grand Trunk, 7½; Baltimore & Ohio, 8½. The actual percentages carried were as follows:

	September.	October.
Lake Shore.....	17.75	17.96
Michigan Central.....	21.57	17.98
Fort Wayne.....	39.22	45.46
Grand Trunk.....	10.04	7.36
Baltimore & Ohio.....	5.94	5.26
Chicago & Atlantic.....	3.67	4.62
Nickel-Plate.....	1.81	1.36

It appears from this that the New York Central carried a little more and the Pennsylvania a great deal more than its

allotted proportion of passengers from New York to Chicago, and that the east-bound traffic was distributed much more nearly in proportion to the allotment.

The figures do not show the distribution of east-bound travel in relation to the pool, because the two new roads are outside of it, and it amounted to about 5½ per cent. in September and 6 per cent. in October. Of the remainder, which is what is covered by the pool, the percentages of the several roads were:

	September.	October.	Award.
Lake Shore.....	18.8	19.1	22
Michigan Central.....	22.9	19.1	24
Fort Wayne.....	41.5	48.4	38
Chicago & Grand Trunk.....	10.6	7.8	7½
Baltimore & Ohio.....	6.2	5.6	8½

Here again we see that the Pennsylvania's line carried much more than its awarded percentage, much more than the two Vanderbilt roads together, and nearly half of the passengers ticketed from Chicago to New York. Doubtless the passengers by the Chicago, St. Louis & Pittsburgh are included with the Fort Wayne's.

#### New New England Freight Lines.

The Boston Advertiser of Jan. 14 says: "Contracts have been prepared and are now ready for signatures by which New York, Vermont, New Hampshire and Massachusetts railroads will form an all-rail line for freight traffic to and from Western points in connection with the New York Central and its connections from Syracuse. The parties to the agreement are the Rome, Watertown & Ogdensburg, the Ogdensburg & Lake Champlain, the St. Johnsbury & Lake Champlain, the Connecticut & Passumpsic Rivers, the Boston, Concord & Montreal, the Northern, the Concord and the Boston & Lowell. It is not probable that large quantities of freight will reach Boston from the West via this roundabout line, but for certain portions of Northern Vermont and New Hampshire the traffic will be of some consequence. The lake and rail line agreed upon at the same time includes all the roads mentioned, with the exception of the Bome, Watertown & Ogdensburg. The object of the agreement is to open up a line between Boston and intermediate parts to Ogdensburg. At Ogdensburg connection will be made with propellers running to lake points via the Welland canal. The distance from Boston to Ogdensburg via this line is 417 miles, against 406 via the Central Vermont. The present agreements refer only to freight traffic, but in the early spring it is proposed to establish a line of through cars between Boston and Ogdensburg, including Pullman sleepers and drawing-room cars."

#### East-Bound Rates.

As a result of the meeting of the Joint Executive Committee in New York last week, the temporary reduction in east-bound rates ended Jan. 14, when the rates were restored to the tariff of Nov. 26, 1883, as follows: Chicago to New York, seventh class, 35 cents per 100 pounds; eighth class, 30 cents per 100 pounds; ninth class, 40 cents per 100 pounds, and live hogs to New York and Boston 35 cents per 100 pounds.

#### Boston Traffic Notes.

In December, 1883, the New York Central delivered to the Boston & Albany, at Albany, 13,794 freight cars, in comparison with 12,371 in December, 1882.

#### What is a Car-Load?

Mr. A. J. Streeter, of Mercer County, Ill., complained against the Chicago, Burlington & Quincy Railroad Co. for charging him 10 per cent. more for a 30-ft. car of live stock than the rate established by the Railroad Commissioners. The road claims 28 ft. as the standard car upon which the rate is estimated, and that the 10 per cent. difference is for the difference in length of car. The decision of the Commissioners is that the rate is established upon car-loads, irrespective of the length of car.—Chicago Tribune.

This action seems to discourage the building of cars of increased capacity, at least as far as Illinois roads are concerned.

#### Lake Superior Iron Ore.

The tonnage of iron ore carried over the Marquette, Houghton & Ontonagon road in 1883 is given by the Marquette Mining Journal as follows:

	Gross tons.
To L'Anse for shipment.....	66,009
To Marquette for shipment.....	708,118
To local furnaces for consumption.....	101,754
Total.....	875,881

The pig iron carried over the road during the year was 10,345 tons, making the total tonnage of ore and iron 886,226 tons.

#### New York, Lackawanna & Pittsburgh Line.

This new fast freight line has been organized to do business over the lines of the Delaware, Lackawanna & Western, the New York, West Shore & Buffalo, the Buffalo, New York & Philadelphia, the Pennsylvania Railroad and the Pennsylvania Company.

#### Discrimination in Rates in Illinois.

After carefully hearing arguments and evidence on the complaints made by James Mix, President of the Kankakee Coal Co., against the Illinois Central Co. for discrimination in rates on coal, the Illinois Railroad Commission has given the following decision:

"The Commissioners believe that the said railroad company has unjustly discriminated against the complainant in charging the Kankakee Coal Co. a greater rate for the transportation of coal from Tracy to Kensington than was charged the Central Illinois Co. under the sliding contract made with the latter company.

"Entering into a special contract for the transportation of this coal, the terms of which were not made public by the common carrier, and by which a lesser sum was charged the greater shipper, was an unjust discrimination under the law.

"The facts, however, show that on May 28, 1883, the railroad company, through its General Traffic Manager, and on Sept. 3, 1883, through its President, offered the complainant the same rates charged the Central Illinois Coal Co., and to refund all overcharges made prior thereto and to make equal rates to the complainant in the future.

"Considering the fairness with which the officers of the road offered to settle with complainant and the absence of any willful intent to violate the law, with the assurance of proper treatment in all future dealings, the Commission is unwilling to prosecute for the recovery of fines, as requested in the prayer of the complainant.

"The Commission also believe that the charge of 70 cents per ton from Tracy to Dickey's Crossing, and 60 cents from Tracy to Kankakee, a greater distance, with the charge of 90 cents per ton from Tracy to Manteno, while at the same time charging 80 cents per ton from Tracy to Chicago, a greater distance by 46 miles, are discriminations not permitted by the statutes of Illinois.

"But it appears in evidence that the contract referred to, giving the 60 cent rate, was made for the express benefit of Mr. Mix, President of the complaining company, who transferred it to another party.

"Therefore, governed by all the circumstances in these



complaints, and recognizing the discretionary powers conferred by the statutes, this Commission declines to bring the suits requested by complainant, so long as the railroad company refrains in the future from violating the laws."

#### OLD AND NEW ROADS.

**Arizona Mineral Belt.**—Work is now in progress on this road from Flagstaff, Arizona, on the Atlantic and Pacific road, to the town of Globe, in the Silver King mining district. The distance is about 180 miles, and grading is in progress for 75 miles.

**Atchison, Topeka & Santa Fe.**—In the United States Court at Denver, Jan. 7, Judge Hallet rendered a decision that this company was not guilty of contempt in not obeying the mandates of the court. The charge was brought by the Denver & New Orleans Co. Some time ago the New Orleans brought suit against the Santa Fe for refusing to accept New Orleans freight to points East. It was claimed that the Santa Fe was partial to the Denver & Rio Grande, and was violating State laws in refusing to receive from or ship freight over the New Orleans. Judge Hallet's decision in this case was in favor of the New Orleans. The New Orleans, after a time, thought the Atchison, Topeka & Santa Fe was still refusing to receive its freight, and asked that the court deal with the road on a charge of contempt. The decision absolves the Santa Fe.

**Baltimore & Ohio.**—Work has been resumed on the extension of the Wheeling, Pittsburgh & Baltimore Division from Washington, Pa., to Connellsville on the Pittsburgh Division. A considerable force is already at work on the tunnel near Washington, and the contractors on the grading are preparing to begin work at several points. This extension was proposed over 30 years ago, and a good deal of work was done upon it in 1872 and 1873, including a part of the tunnel and the heavy work about the Monongahela crossing at Belle Vernon. It will complete a loop or second line from Wheeling to Cumberland having better grades than the main line.

**Bloomsburg & Sullivan.**—This company has been organized to build a railroad from Rupert, Pa., northward, to Bernice in Sullivan County, where it will connect with the State Line & Sullivan road. The distance is about 60 miles by the line proposed.

**Boston & Lowell.**—A suit has been begun by the Nashua & Lowell Co. in the United States Circuit Court in Boston, against the Boston & Lowell Co., Hocom Hosford and C. E. A. Bartlett to recover the sum of \$200,086, claimed to be due the Nashua & Lowell under the old partnership contract, under which both roads were for many years worked together. Mr. Hosford is included in the suit as having been formerly Manager of the joint roads, while Mr. Bartlett was Treasurer.

**Canadian Pacific.**—Mr. George Stephen, President of this company, has issued a circular to the stockholders giving the following information: During the year 1883 the company built 698 miles of railway, consisting of 558 miles of main line and 140 miles of branch lines. On the Western Division 377 miles of rails have been laid—completing the track to the summit of the Rocky Mountain pass, 960 miles west of Winnipeg—leaving a gap of less than 300 miles to complete the connection with the Pacific Ocean, and there is every reason to expect that this connection will be completed within the next two years. On the opening of navigation next season the company will have its own steel steamships built this year on the Clyde expressly for the lake traffic, ready to run between Lake Huron and Thunder Bay, on Lake Superior. A new through line of its own will thus be opened, carrying freight and passengers from Montreal to all points in the newly opened country for a continuous distance of 1,400 miles west of Port Arthur. On the section of the line north of Lake Superior 167 miles of track have been laid during the year, and within the next few weeks 54 miles more will be added, making a total on that section of 221 miles, leaving 430 miles yet to be built in order to complete the through all-rail connections between Montreal and the northwest provinces. There are at the present time over 9,000 men at work upon this section, which, it is fully expected, will be completed and ready for operation before the close of the year 1885.

The gross earnings for 1883 (estimating the month of December) were \$5,420,913. This includes for the transportation of construction of materials and supplies, \$1,274,000. The actual revenue from ordinary traffic was, therefore, in 1883, \$4,146,913, as against in 1882, \$2,449,824; increase in 1883, \$1,697,089.

The net earnings for the nine months ending Nov. 30 have been \$889,811. The directors, early in November last, made an arrangement with the Dominion government to insure for 10 years a minimum dividend of 3 per cent. per annum upon the outstanding capital stock of the company, the company continuing to pay an additional 2 per cent. per annum during construction, making 5 per cent. per annum in all. This guarantee "consists of the deposit with the government of cash and securities to an amount sufficient to provide the money with which to pay each half-yearly dividend; that the government has absolutely assumed such payments, and has bound itself to place the required amount each half year in the Bank of Montreal, as trustee for the shareholders, and that the bank has covenanted to pay the dividend so deposited on the 17th day of February and August in each year for the next 10 years."

**Central Vermont.**—The special masters in the accounting of the receiver and manager of the Vermont Central and Vermont & Canada railroads, for the period covered by the Central Vermont receivership, July, 1873, to July, 1883, have filed their reports in the Franklin County Clerk's office at St. Albans. The managers assisted materially in the examination by producing all the books and papers in their possession. The masters find that the Central Vermont Co., as receiver, operated the roads under its charge in good faith and with ordinary prudence, and they approve of and allow the accounts as presented.

In St. Albans, Jan. 11, the Chancellor filed an order approving the Masters' report in the case, accepting the accounts of the Central Vermont Co. as receiver and manager, and ordering them to be settled and closed.

**Chicago, Ritchie & Danville.**—The line of this road, which is to be built jointly by the Louisville & Nashville and Wabash, St. Louis & Pacific companies extends from Ritchie, Ill., on the Chicago Division, 53 miles from Chicago, south by east to Danville. The distance is 87 miles by the preliminary line surveyed, and the work will be generally light, the line running along a table-land which divides the basins of the Vermillion and Sangamon rivers. But little bridging will be required, except over the South Fork of the Vermillion, where a bridge will be required some 80 ft. above the stream's level.

**Cincinnati, Van Wert & Michigan.**—This road is now completed from Greenville, O., northward through Ansonia and Celina to Paulding, a distance of 76 miles. Regular trains will soon be running over the whole length of the road.

**Cleveland, Columbus, Cincinnati & Indianapolis.**—Surveys are in progress for a branch from this company's Indianapolis & St. Louis Division at Carbon, Ind., southward to Brazil, about 8 miles. The object of the branch is to secure additional coal traffic.

**Connotton Valley.**—A Boston dispatch says that an application has been made for a receiver for this road in behalf of contractors, whose claims remain unpaid to the amount of probably \$200,000. The interest on the first mortgage bonds has also been in default since November, 1882. A portion of the holders accepted an offer of scrip convertible into bonds. The overdue interest is about \$290,000. The interest on terminal and car trust bonds has been paid promptly, and the company has no outstanding obligations except interest and the disputed claims mentioned above. The outstanding bonds and accrued interest amount to \$6,300,000. Coming before these are some \$800,000 in terminal and car trust securities.

**Danville, Mocksville & Southwestern.**—This road is now completed to Leaksville, N. C., two miles beyond Smith's River, which has been the terminus for nearly two years, and 10 miles from the junction with the Danville & New River near Cascade, Va. The Leaksville business has heretofore been done at Smith's River.

**Danville, Olney & Ohio River.**—At the meeting held in Boston last week the bondholders who favor the Corbin plan met and formally adopted the plan of reorganization presented. This plan provides for foreclosure, sale and purchase in the interest of first mortgage bond and certificate holders, represented by Charles G. Stevens, Austin Corbin, Isaac Penno, John W. Carter and Hales W. Suter. The new company will issue 75 per cent. of income bonds for the present mortgage bonds, and 25 per cent. in stock to the same, and also stock at par for all accrued interest. The amount of income bonds will, therefore, be \$651,750. It is provided that the issue of stock shall not exceed \$1,500,000. New first mortgage, 30-year, 6 per cent. bonds will issue, not exceeding \$500,000, for the purpose of paying off about \$120,000 of receiver's certificates and all existing claims, and put the road into good condition. These bonds will be negotiated by the committee through Mr. Austin Corbin. The committee above named stated to the bondholders that Receiver Howard obtained permission from the court Nov. 24 for an issue of \$20,000 more receiver's certificates, falling due in February next, making \$120,000, as above stated.

**Delaware, Lackawanna & Western.**—It is reported that this company is negotiating for the use of the Buffalo, New York & Philadelphia tracks from Buffalo to Brockton, about 40 miles, with the view of using them as part of an extension of its road from Buffalo westward. According to this rumor a new line will be built from Brockton to Toledo. The report does not rest on a very solid foundation, apparently.

**Detroit, Mackinac & Marquette.**—On the extension of this road from Marquette, Mich., westward, the track is laid from Negaunee westward four miles. From Marquette to Negaunee the grading is finished, and track will be laid as soon as the weather permits. The matter of the crossing over the Marquette, Houghton & Ontonagon at Negaunee is not yet settled. It is understood that Railroad Commissioner Innes has offered to approve the location provided the grade is raised, so that the new road will cross the old road's tracks on a bridge, but the company has not come to a decision in the matter.

**Duluth & Iron Range.**—The work of clearing and grading the line of this road is still in progress, and will be continued through the winter as far as possible. A large dock has been built at Two Harbors, on Lake Superior, the southern terminus of the road, and other preparations made for traffic. The section now under construction is from Two Harbors, or Agate Bay, on Lake Superior, northward to the mines of the Minnesota Iron Co., at Tower on Vermillion Lake, a distance of 70 miles. There are 20 miles of track laid, on which the company has three locomotives and 40 cars. The road is solidly built and is laid with 61-lbs. steel rails, in anticipation of a heavy traffic in iron ore.

**Greenville & Laurens.**—A contract for grading the first section of this road, extending from Greenville, S. C., southeast 9 miles, has been let to Stewart, Sansong & Co. A section from Laurens northwest will be let shortly.

**Harper's Ferry Water Gap.**—This company has been organized to build a railroad from Frederick, Md., through Harper's Ferry and Charleston, W. Va., to a point on the boundary line between Virginia and West Virginia in Clarke County.

**Hartford & Harlem.**—The Connecticut Railroad Commission has approved the amended location of this road from Britain to the New York State line near Greenwich, and the company is now authorized to proceed with the work.

A suit in the nature of a *quo warranto* has been begun to test the legality of the company's organization and its right to exist as a corporation.

**Indianapolis Union.**—The plan for the reorganization of this company and the building of a new union passenger station have been agreed upon, and approved by all the companies concerned except the Wabash and the Cincinnati, Hamilton & Dayton. It is expected that these companies will also accept the plans shortly.

**Intercolonial.**—The latest addition to the Intercolonial system, the Eastern Extension road, is in operation from New Glasgow, N. S., to the straits of Canso, 79 miles. The Dominion Government pays the province of Nova Scotia, which owned the road, \$1,200,000 for the road, or about \$15,000 per mile, the province also relinquishing any claims which it may have to the Pictou Branch of the Intercolonial, under the old agreement by which that branch was to be turned over to the builders of the Eastern Extension.

**Lake Erie & Western.**—A new company—the Lake Erie & Mississippi—has been organized by officers of this company, to build the proposed extension of the road from its present terminus at Bloomington, Ill., west by north to Peoria. The line, which has been already surveyed, is about 40 miles long. Its object is to give the road a better terminus.

**Louisville, New Orleans & Texas.**—The track now laid on this road extends from New Orleans northward 100 miles; from Vicksburg, Miss., southward to Cole's Creek, 46 miles; from Vicksburg northward to the south line of Washington County, Miss., 58 miles, and from Memphis, Tenn., southward to Magnolia, Miss., 57 miles, making a total of 261 miles of the road on which rails are laid. Work on the grading is being pushed at all points where it is not yet finished, and tracklaying is also in progress.

**Mexican Railroad Notes.**—The following notes are from the Mexican *Financier* of Dec. 22:

The business of the Mexican Central is increasing at Chihuahua. Rails are fast coming in and there will be no further delay in track-laying.

The Mexican National has received two powerful locomotives for use on the heavy grades of the ascent to the Central table-land in the approach to Saltillo.

A concession has been given by the Zacatecas Legislature to Mr. Jesus Berumen for a tramway from the Plaza Principal of Fresnillo to the station of the Mexican Central.

The programme for the railway celebration at Zacatecas will include an exhibition of mineral products in the Instituto Garcia. In the procession the miners will carry standards of various colors bordered with gold, and the employees of the reduction works blue standards bordered with silver.

The concession to Gen. Carbó for the construction of a railway from Mazatlan to Rosario in Sinaloa, with an extension to a junction with the Mexican Central in the District of Tepic, is regarded as a highly important and valuable one, and will give the Pacific line of the Central access to the leading port on the Pacific coast.

**Milwaukee & Northern.**—The main line of this company's Wisconsin & Michigan line is now completed to Pike River, Wis., 26 miles northward from Ellis Junction. The branch from Ellis Junction east to Marinette and Menominee, 22 miles, is also completed, the last rail having been laid Jan. 7. Regular trains began to run to Menominee Jan. 14.

**New York Central & Hudson River.**—This company has made a heavy reduction in local freight rates to and from all points where it competes with the West Shore line. From Albany to New York the rate is reduced from 25 to 10 cents per 100 lbs.; from Utica to New York from 32 to 15 cents; from Rochester to New York from 32 to 20 cents, and from other points equal reductions are made, the average being about 50 per cent., it is said.

**New York & New England.**—Formal application has been made to the Legislature of Massachusetts to authorize this company to use the unused second mortgage bonds for the purpose of funding the floating debt. The act authorizing the creation of the second mortgage provided that the bonds should be used only for second track and terminal improvements. Concurrent legislation in Rhode Island and Connecticut will be necessary to permit their use to pay the floating debt as proposed.

The Receiver has ordered an increase in the suburban rates out of Boston, and also gives notice that he will not continue the offer made by the company of a free pass for a year to any one building a house at certain suburban points. He states that the suburban service does not pay as at present conducted, and that an increase of fare or a reduction of train service is necessary. He has also ordered that after March 31 trains on the Dedham Branch shall be withdrawn, unless some arrangement can be made with the residents on that branch by which the trains can be made to pay expenses. In a published letter the Receiver's policy is stated as follows:

"The Receiver is disposed to use this property to accommodate all classes of business that in return yields a profit to its owners; but that he cannot subordinate its business interests to a desire to show gross earnings, useless activity or simple competition."

**New York, New Haven & Hartford.**—This company has sent out notices inviting bids for the construction of the third and fourth tracks on its road between New Rochelle, N. Y., and Stamford, Conn. At several points the new tracks will occupy a different location from the old, and the work there will be equivalent to the building of a new double-track road. The right of way has been nearly all secured.

**New York, Ontario & Western.**—Some surprise was caused this week by an application for the appointment of a receiver for this road, which was made to the United States Circuit Court in New York Jan. 15 by Chipman & Co., creditors for coal furnished the road, and supported by Conrad N. Jordan, Treasurer of the company. The complaint charges that the company has a floating debt of \$1,205,277, and that it has no money in the treasury and no resources beyond the daily receipts of the road, which are not sufficient to meet this debt. It also charges that the property of the company has been wasted by mismanagement, and that its stockholders need the protection of the Court. The Court took the papers and granted the usual order to show cause why the petition should not be granted, returnable Jan. 17.

Mr. Jordan's avowed object in this application is to separate the management of the company from that of the New York, West Shore & Buffalo and the North River Construction Co. The company has no bonded debt, and when it was reorganized several years ago had a fund of nearly \$10,000,000 in its treasury, derived from assessments on the stockholders. This fund has been expended in building the extension from Middletown to Weehawken under the contract with the West Shore road. The earnings of the road have been very light, but they have exceeded the working expenses, and the floating debt has been incurred in the building of the new line. Under the contract between the companies this company received \$10,000,000 West Shore bonds in part payment for the new road, which it subsequently sold to its stockholders at 50.

At the annual meeting, Jan. 16, Mr. Jordan moved the appointment of an investigating committee and the adjournment of the meeting until the committee could make a report. It was resolved, however, to proceed with the election of directors, and the old board was re-elected.

**New York, Rock Island & Omaha.**—This company has filed articles of incorporation in Illinois to build a railroad from Chicago to Rock Island and thence to Des Moines, Ia. It is not a project of any importance.

**New York, West Shore & Buffalo.**—Reports have been current for some time of the embarrassments of this company, and the result has been a heavy fall in the price of its first mortgage bonds. These reports have their foundation in the fact that the proceeds of the bonds have all been expended, besides some \$6,000,000 more, borrowed on pledge of the West Shore & Ontario Terminal Co. bonds, and that a considerable sum is still needed to finish the second track and other work on the road. It does not appear, however, that the company is directly embarrassed, the January interest having been paid, and there being no large floating debt other than the money borrowed on the terminal bonds and the amount due the North River Construction Co.

The North River Construction Co., however, which has built the road as contractor, has a floating debt of about \$3,000,000. Its property consists chiefly in the stock of the West Shore Co., of which it holds a majority. In order to protect the company and to prevent the seizure and sale of these securities application was made for the appointment of a receiver on Jan. 12 to the Chancellor of New Jersey, where the Construction Co. was organized. The Chancellor granted the order, appointing Mr. Ashbel Green, and his appointment was subsequently extended to New York by the concurrent action of the Supreme Court. This receivership, of course, does not affect the West Shore Co., except so far as it has business relations with the North River Construction Co.

It is understood that the directors have voted to approve



an issue of \$15,000,000 second-mortgage bonds, but nothing further has been done, probably because it would be very difficult, if not impossible, to place such bonds at the present time. It is reported that an application was made to the Pennsylvania Railroad Co. for assistance, but refused. It is also reported that Mr. Vanderbilt is seeking to depress the securities of the company in order that he may buy them up as cheaply as possible, which he, of course, denies.

**Ohio Central.**—A dispatch from Parkersburg, W. Va., Jan. 15, says: "Judge Jackson to-day heard an application to extend the jurisdiction of Receiver Sharp, of the Ohio Central Railroad, to Corning, O., to include all of the River Division. The motion was argued by G. H. Weld and E. L. Andrews, for the bondholders of the first mortgage, and Mr. Swayne for the Central Trust Co. Judge Jackson reviewed the history of the questions involved, and withheld final action for a few days, at Mr. Swayne's request, until he could file an additional brief. He stated, however, that it was due for him to intimate the views that had controlled him in the appointment of Mr. Sharp as Receiver. He was strongly inclined to the opinion that the Court in this circuit had prior jurisdiction in this cause over the Court in the Sixth Circuit for the reason that under the bondholders' bill, under which he had acted, there was a prior service process and seizure of the property before the bill was filed, process served or seizure of property under the Central Trust mortgage; that the Judge of the Sixth Circuit had made an order appointing a Receiver in his court under a bill filed by the Central Trust Co. eight days subsequent to the bill filed in this circuit, and that his order of the appointment of Mr. Martin as Receiver was under that bill and none other; that while it was true that the bondholders' bill under which he had acted was filed two days in the Sixth Circuit before it was in this circuit, still service process was not had nor seizure made until service process was had and seizure made in this circuit, and that if an effort had been made to take jurisdiction under that bill in Sixth Circuit, still jurisdiction would not have been acquired by the court in that circuit for the reason that service process and seizure of property were both subsequent to service process and seizure of property in this circuit, but in fact no effort was made to acquire jurisdiction under the bondholders' bill in the Sixth Circuit, nor was there any order entered appointing Mr. Martin Receiver under that bill. For these reasons it seemed to him that there could be no question as to the jurisdiction of his court."

**Ohio & Mississippi.**—Receiver Douglas makes the following statement to the court for December:

Cash on hand, Dec. 1	\$121,345
Receipts from all sources	515,824
Total	\$637,169
Disbursements	395,918
Cash on hand, Jan. 1	\$241,251

The receipts exceeded the disbursements by \$119,906 for the month.

**Oregon Railway & Navigation Co.**—The directors of this company have voted to reduce the annual dividend for 1884 from 10 to 8 per cent. The first quarterly dividend of 2 per cent. has been officially declared, and will be paid Feb. 1. The company is about to issue 5 per cent. mortgage bonds to the extent of \$20,000 a mile on both finished and contemplated road. The entire issue will amount to about \$14,250,000; the completed road being now 569 miles, and the proposed extensions 145 miles, making 714 miles. The funds raised by the new loan will be applied as follows: \$6,000,000 of the company's first-mortgage bonds and \$1,200,000 of its outstanding scrip will be taken up; the Baker City Branch, which connects the main line with the Union Pacific junction, will be completed, and \$3,000,000 of the Oregon & Transcontinental Co.'s bonds issued on the Palouse Branch will be replaced. When this shall have been done the Palouse Branch will become the property of the Oregon Railway & Navigation Co., of whose lines it forms naturally a part. The scrip to be retired bears 8 per cent. interest, and the first-mortgage bonds 6 per cent.; the latter do not mature until 1909.

**Oregon & Transcontinental Co.**—The *Commercial and Financial Chronicle* of Jan. 12 says: "The new management, to provide for the settlement of the floating debt of the company, has announced a loan of \$5,000,000 for one year on the pledge of 91,500 shares of Northern Pacific preferred, 91,500 shares of Oregon Railway & Navigation Co. stocks. The securities are to be deposited with the Farmers' Loan & Trust Co., which will issue its trust receipts to those agreeing to take the loan. It is understood that of the whole amount, \$2,500,000 has been taken in Boston, \$2,000,000 in Philadelphia and \$500,000 in this city. No stock bonus will be given, but at the end of the year a cash commission of 5 per cent. will be allowed. It is reported that the Oregon Navigation stock was put in at a valuation of \$50 a share, the Northern Pacific preferred stock at \$30 a share, and the Northern Pacific common stock at \$10 a share. The syndicate which is to advance the money has the privilege of buying 45,250 shares of each of the stocks named at 25 for Northern Pacific common, 50 for the preferred and 100 for Oregon Navigation, the proceeds to be applied in liquidation of the loan. It must, however, buy all three of the stocks named at the prices stated. Treasurer White said that the privilege was limited to the period between July 1 and Nov. 1 of this year."

"The remarkable advantages given by this option for operations in the several stocks were commented upon among brokers."

Arrangements have been made for the sale of the Palouse Branch, built by this company for the Northern Pacific, to the Oregon Railway & Navigation Co., which is to pay for the same \$3,000,000 in its new 5 per cent. bonds. This will retire an equal amount of this company's collateral trust bonds, reducing their amount to about \$10,000,000 secured by bonds of branch roads built.

**Panama.**—A correspondent writes to us from Aspinwall as follows: "There is to be some \$400,000 spent in reconstructing the road, building new engine-houses, &c., and the whole will be completed by the latter part of April next. The traffic of the road is enormous and is increasing daily. There are here some 60 new Rogers and Cooke engines (from Paterson, N. J.) being put up to run over the road; they have 5 ft. 2 in. drivers. There are now 22 trains daily over the road, and when the coffee commences to come from the Pacific side trains will be run at night in addition to the daily trains."

**Pennsylvania.**—The *Altoona (Pa.) Call* says: "Pennsylvania Railroad officials, in speaking of the reported possible termination of the contract with the Pullman Palace Car Co., say that the lease does not expire until May, 1885, and that the matter has not as yet been considered, though it is not improbable that something of the kind may take place, and at any rate some radical modifications will be made in the present agreement. The Pennsylvania Railroad Co. proposes to try some experiments and will construct two or three parlor cars of an improved kind at its own shops in Altoona. These the

company intends to put on its own lines and ascertain just how cheaply they can be run, as well as their cost, and a comparison will then be made between the expense of these and the Pullman cars. A car is now in course of construction, the entire sides of which are of glass. Should it be decided not to renew the lease the company will build all its own 'sleeping cars, securing one of the best of the many patents now in the market, its own drawing-room coaches and its own dining-room cars."

**Philadelphia & Reading.**—At the annual meeting in Philadelphia, Jan. 14, President Gowen presented the annual report of the managers. The chief feature of the report was the recommendation by the board of the creation of a collateral trust loan of \$12,000,000, at 5 per cent. to pay off the floating debt and the outstanding mortgage bonds, and also to purchase 50,000 shares of Jersey Central stock, in order to obtain complete control of that road.

At the conclusion of the reading the stockholders adopted a series of resolutions, adopting the report, and ordering it to be printed, ratifying and approving the various acts, contracts, agreements and engagements entered into and recommended by the managers, and thanking the president and managers for their conduct of the company during the past year.

A stockholder offered a resolution requesting Mr. Gowen to retain the presidency of the company, but it was withdrawn at that gentleman's request.

Mr. Gowen then offered two resolutions—one providing that when the meeting adjourns it adjourn to meet at the office of the company on Monday, Jan. 28, at 12 o'clock, for the purpose of having a stock vote upon the resolution recommending the payment of a dividend; the other set forth that "it is the opinion of the stockholders that, after the successful issue of the collateral trust loan referred to in the managers' report, and the realization of the proceeds thereof for the retiring of the outstanding income mortgage bonds and paying the floating debt of the company, and paying the balance of the purchase money due upon 50,000 shares of the Central Railroad Co. of New Jersey stock, a dividend of 21 per cent., representing the arrears due, be made upon the preferred stock of the company, and a dividend of 3 per cent. upon the common stock of the company."

Mr. Gowen stated that he had received proxies for from 385,000 to 400,000 shares, and a large proportion of them are accompanied by the request that he should vote for a dividend, and that unless otherwise instructed he would vote them in favor of the resolution he had offered.

The resolution providing for a stock vote Jan. 28 hence was adopted unanimously, and after electing officers and managers the meeting adjourned until that date.

**Pittsburgh & Lake Erie.**—At the annual meeting in Pittsburgh, Jan. 14, the stockholders voted to ratify the lease of the Pittsburgh, McKeesport & Youghiogheny road, which extends the line from Pittsburgh into the Connellsville coke region, and is 59 miles long.

**Pottsville & Mahanoy.**—This new company last week began surveys for its projected line from Pottsville, Pa., to a connection with the Lehigh Valley, and the proposed extension of the Pennsylvania Schuylkill Valley line. In order to prevent it from occupying the abandoned line of the Schuylkill Canal the Philadelphia & Reading Co. began to lay track on the tow-path. The track was laid without any grading, the ties and rails being dumped down on the snow. The new company obtained as soon as possible a temporary injunction restraining the Reading from proceeding with this work, or otherwise interfering with it, the order being made returnable Jan. 22 next.

**Richmond & Chesapeake.**—A bill has been introduced in the Virginia Legislature to charter a company by this name, with A. Y. Stokes, Thomas W. McCance, C. E. Belvin, S. G. Tinsley, H. M. Price, A. L. Johnston, Joseph R. Roane and James B. Pace as the incorporators. The bill provides for the construction and operation of a railroad from the city of Richmond to a point on the Chesapeake Bay and near the mouth of the Potomac River, passing through the counties of Henrico, Hanover, King William, King and Queen, Essex, Richmond, Westmoreland and Northumberland, with branch lines not exceeding 20 miles in length to any mineral or other land that may be owned by said corporation, or to any furnace, manufactory or other improvement.

The bill also provides that the company may acquire by contract, lease, purchase or consolidation the property and franchise of any connecting company upon such terms as may be mutually agreed upon. It shall also have the power and right in like manner to transfer its franchises and property by sale, lease or consolidation to any connecting company incorporated under the laws of Virginia.

**Richmond & Danville.**—This company makes the following statement for December and the three months of its fiscal year from Oct. 1 to Dec. 31, for its own line of 757 miles:

	December—	Three months—
	1883.	1882.
Earnings	\$334,640	\$322,447
Expenses	165,803	180,400
Net earnings	\$168,837	\$132,047
Per cent. of exps.	49.5	56.1

For the three months this shows an increase of \$37,451, or 3.4 per cent., in gross earnings, with a decrease of \$42,080, or 6.7 per cent., in expenses, the result being a gain in net earnings of \$79,511, or 16.6 per cent.

For the controlled lines the following statement is made for the month of December:

	Gross earnings—	Net earnings—
	1883.	1882.
Char. Col. & Ang.	\$77,913	\$80,852
Col. & Greenville	95,570	97,537
Virginia Midland	118,443	115,824
Western N. C.	33,784	26,444
Total	\$295,710	\$321,157

This shows for all the lines a decrease in gross earnings of \$25,447, or 7.9 per cent., and a gain in net earnings of \$1,828, or 1.7 per cent. The loss in gross earnings was on the two lines in South Carolina.

**Rome, Watertown & Ogdensburg.**—This company makes the following statement for November and the two months of its fiscal year from Oct. 1 to Nov. 30:

	November—	Two months—
	1883.	1882.
Earnings	\$153,174	\$155,300
Expenses	96,098	108,241
Net earnings	\$57,076	\$47,059
Per cent. of expenses	62.8	69.7

For the two months there was a decrease of \$5,258, or 1.6 per cent., in gross earnings, with a decrease of \$22,935, or 10.8 per cent., in expenses, the result being a gain in net earnings of \$17,877, or 15.4 per cent.

**St. Joseph & Western.**—In the United States Circuit Court at Keokuk, Ia., Jan. 8, an order was made discharging the Receiver recently appointed for this road. This action was

taken on account of the withdrawal of the suit in which the Receiver was appointed, and the settlement of the difficulties between the bondholders and the Union Pacific Co., which operates the road. In accordance with this agreement the board has been reorganized, giving the bondholders several representatives.

**St. Louis, Sturgis & Battle Creek.**—This company has been organized to build a railroad from Battle Creek, Mich., south by west to Sturgis, about 30 miles.

**Sea Isle & Ocean City.**—Arrangements are being made to build this proposed road from Sea Isle, N. J., to Ocean City, a distance of 10½ miles. The projectors are trying to induce the West Jersey Co. to lay the track and operate the road, provided they complete the road-bed, but no answer has been given to this proposition.

**Sharpsville.**—The long fight over the control of this road is not yet ended. Recently Mr. E. Osborn, of New York, who represents W. L. Scott, made application to the United States Circuit Court in Pittsburgh for an injunction to restrain Walter Pierce from voting on his stock at the annual meeting. The Court, however, after hearing argument, refused to grant the injunction.

**Sinnamahoning.**—It is proposed to build a narrow-gauge road from a point on the Buffalo, New York & Philadelphia road along the Sinnamahoning by Bailey Run or Forrest House to North Wharton. The object is to reach a large body of lumber on the Sinnamahoning and its upper branches, which has never been touched.

**Southeastern, of Canada.**—The annual meeting of this company has been prevented by an injunction sued out by George Stephen and others, who claim to be the real owners of the stock nominally held by Bradley Barlow.

**Southern Central.**—The engine-house of this road at Auburn, N. Y., was destroyed on the night of Jan. 12, with two engines and several freight cars, the loss being estimated at \$25,000.

**South Pennsylvania.**—Mr. Charles McFadden, of Philadelphia, who is now building the Allegheny tunnel, will begin work on the section lying between Bedford, Pa., and said tunnel, which he has lately secured, as soon as spring opens. Heavy snows are delaying work on this line.

The first accident at the Allegheny tunnel occurred last week, resulting in the death of one man, who was struck on the head by a stone from a blast.

The work at the Laurel Hill tunnel will commence about the first of next month.

**Texas & St. Louis.**—In the United States Circuit Court at Keokuk, Ia., Jan. 12, application was made by the Central Trust Co., of New York, as trustee, for the appointment of a receiver. The Court granted the application and appointed General Manager Woodward to the position. It is stated that the proposed reorganization and reduction of the debt has been accepted by holders of nearly nine-tenths of the bonds, and that the object of the receivership is to enable the reorganization to be carried out without waiting for the rest of the bondholders to come in, or in spite of their opposition. It is also necessary in order to prevent suits against the company and to enable it to settle its floating debt.

**Union Pacific.**—The *Boston Transcript* says: "The question is often asked, if New England investors are buying Union Pacific so largely, whence comes all the stock? The question can be briefly answered. Three years ago Jay Gould held probably above 80,000 shares of Union Pacific; he dropped it when the stock crossed par, and the advance to 130 would never have taken place had not Mr. Vanderbilt bought the stock at the time Mr. Gould sold it. During the last two years Mr. Vanderbilt has sold his 50,000 shares, to reinvest the proceeds in other enterprises, more particularly his own. Mr. Belden has been shaken out of his block of 18,000 shares by the Wall street bears, and Colgate & Co., bankers, of New York, have disposed of most of their blocks of 20,000 shares. The stock is now back in price where it was four and five years ago, when Wall street and Jay Gould traded in it at from 60 to 90, but it is now paying 7 per cent. dividend instead of 6, has doubled the number of stockholders, and is earning several millions more of money. It is also passing more successfully than was expected from an absolute monopoly to the domain of a competitive railway system, dependent upon local traffic and the future development of the largest undeveloped territory tapped by any railroad system in the world."

**Vermont Valley.**—The following order from the Superintendent's office is dated Dec. 31:

"The second track between South Charlestown and Springfield will all be ready for use, commencing Tuesday, Jan. 1, at 12 o'clock, noon."

"On and after above date and time all trains will use the east track going north and the west track going south."

"The switches at South Charlestown and Springfield will be kept set for the west track, and conductors of trains going north must see that they are so set before leaving."

"All trains must pass these switches cautiously. Trains, moving in either direction, when reaching end of double track, must be certain that all opposing trains having right of road have passed before entering upon single track."

"No train will pass between a station and a train which is receiving or discharging passengers."

**Virginia Western.**—A bill has been introduced in the Virginia Legislature to charter this company to build a railroad from some point on the Richmond & Allegheny road west of Lynchburg, Va., by way of Craig's Creek to the Tennessee and Kentucky state line.

The capital stock is fixed at \$10,000,000. The incorporators are Gen. Joseph B. Anderson, Decatur Axtell, of Richmond; H. C. Parsons, John A. D. Lee, James W. Marshall, John W. Daniel, Martin Hoffman, Samuel H. Newberry, Harman Newberry, Samuel W. Williams, Wm. A. Stewart, Ferdinand Rorer, John A. Carter, Andrew McCarthy, of Virginia; Samuel Colt, of Connecticut; Elbert C. Fowler, John C. McDonald and Charles C. Lewis, of West Virginia. This road is to be begun in two years and completed in five. The line proposed is nearly that of the Virginia & Kentucky, which was chartered some 15 years ago as an extension of the Atlantic, Mississippi & Ohio (now the Norfolk & Western) road.

**Woodstock.**—This road, which runs from Woodstock, Vt., to White River Junction, 14 miles, makes the following statement for the year just closed:

Earnings (\$1.68 per mile)	\$23,065
Expenses (62.2 per cent.)	14,306
Net earnings (\$626 per mile)	\$8,759

The company paid \$9,000 to the town of Woodstock on account of interest in the town bonds issued to build the road. Trains ran 20,000 miles during the year, carrying 13,509 passengers and 8,889 tons of freight.